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WATER SUPPLY OUTLOOK

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

for

OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE

and

OREGON STATE UNIVERSITY

and

STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above in cooperation with other Federal, State and private organizations.

JAN. 1, 1963

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 4170, Portland 8, Oregon.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEBMAY)	PORTLANO, OREGON	. ALL COOPERATORS
STATES			
AL A SK A	MONTHLY (MARMAY)	PALMER. ALASKA	ALASKA S.C.O.
AR I ZONA -	_ SEMI-MONTHLY(JAN.15 - APR.1)	PHOENIX. ARIZONA	.SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO ANO NEW MEXICO	_ MONTHLY (FEBMAY)	FORT COLLINS, COLORAGO.	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
10AH0	_ MONTHLY (JANJUNE)_	BOISE, IOAHO	IOAHO STATE RECLAMATION ENGINEER
MONTANA	_ MONTHLY (JANJUNE)	BOZEMAN. MONTANA	MONT. AGR. EXP. STATION
NE V A O A	_ MONTHLY (JANMAY)	RENO. NEVAOA	NEVAGA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
ORE GON	_ MONTHLY (JANJUNE)_	PORTLANO, OREGON	OREGO STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	_ MONTHLY (JAN JUNE)_	SALT LAKE CITY, UTAH	. UTAH STATE ENGINEER
WASHINGTON-	_ MONTHLY (FEB JUNE)_	SPOKANE, WASHINGTON	. Wn. STATE OEPT. OF CONSERVATION
WYOMING	MONTHLY (FEBJUNE)	CASPER, WYOMING	.WYOMING STATE ENGINEER
	PUBLISHED B	Y OTHER AGENCIES	
REPORTS	ISSUED		AGENCY
BRITISH COLUMBIA	MONTHLY (FEBJUNE)		, OEPT. OF LANOS, FORESTS ANO S, PARLIAMENT BLOG., VICTORIA,

CALIF. OEPT. OF WATER RESOURCES, P.O. BOX 388,

SACRAMENTO. CALIF.

MONTHLY (FEB. -MAY)

WATER SUPPLY OUTLOOK

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

for

OREGON

ISSUED

JANUARY 8, 1963

Report prepared by

W. T. FROST, Snow Survey Supervisor

and

BOB L. WHALEY, Assistant Snow Survey Supervisor

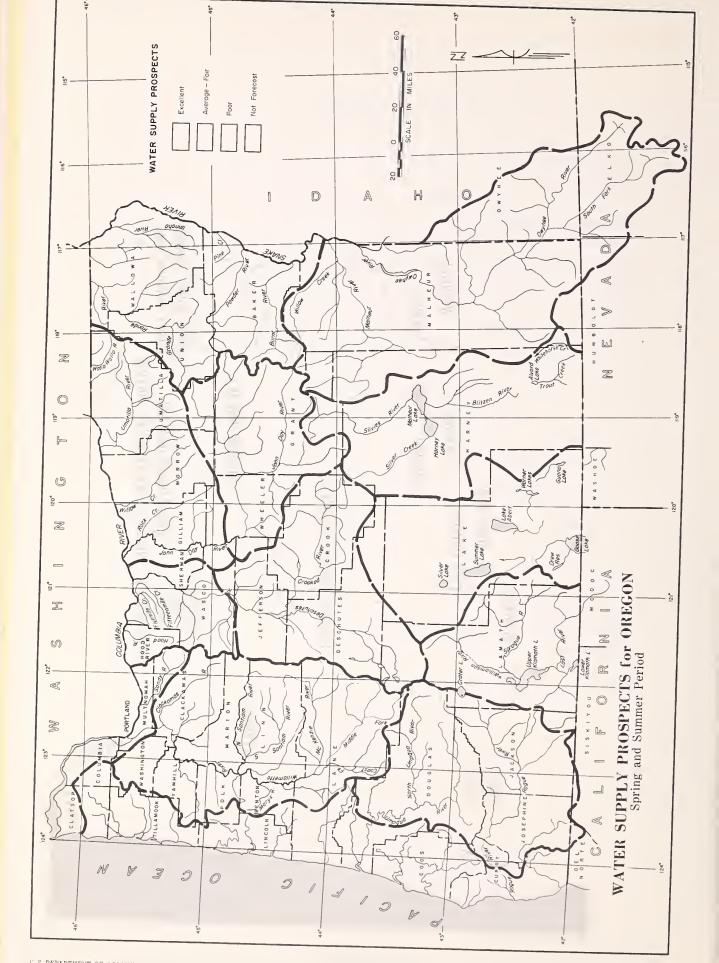
SOIL CONSERVATION SERVICE 209 S.W. 5TH AVE., PORTLAND 4, QREGON

Issued by



TABLE OF CONTENTS

P A G	Ε
WATER SUPPLY PROSPECTS FOR OREGON	1
WATER SUPPLY OUTLOOK FOR OREGON	1
STORAGE STATUS OF OREGON RESERVOIRS(MAP)	3
SNOW WATER ACCUMULATION IN OREGON (STATEWIDE) (GRAPH)	4
SNOW WATER ACCUMULATION IN OREGON (AREAS)(GRAPHS)	5
SNOW WATER ACCUMULATION IN OREGON (AREAS)(GRAPHS)	6
MOUNTAIN SOIL MOISTURE IN OREGON(MAP)	7
VALLEY PRECIPITATION IN OREGON(MAP AND TABLE)	8
CURRENT OREGON STREAMFLOW(GRAPH)	9
DETAILED WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS	
OWYHEE. MALHEUR AREA	1
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA AREA	2
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY AREA	3
UPPER JOHN DAY AREA	4
UPPER DESCHUTES, CROOKED AREA	5
HOOD, MILE CREEKS. LOWER DESCHUTES AREA	6
LOWER COLUMBIA AREA	7
WILLAMETTE AREA	8
ROGUE, UMPQUA AREA	9
KLAMATH AREA 10)
LAKE COUNTY, GOOSE LAKE AREA 1	1
HARNEY BASIN AREA 13	2
MAP AND INDEX OF OREGON SNOW COURSES(MAP)	
LIST OF COOPERATORS	



WATER SUPPLY OUTLOOK for OREGON

JANUARY 1, 1963

The early winter outlook for Oregon's 1963 irrigation water supplies is fair. Snow cover in measurable amounts, is found only at high elevations and surveys there range from 0 to 33 percent of the usual January 1 snow water amounts. Reservoir storage is much better than last year at this time and coupled with good soil moisture conditions over most of the state, is likely to be the safety factor needed to offset a low snow year. Fortunately, there are still two or three months remaining to improve this low snow pack.

SNOW COVER

Surveys on key snow courses in Oregon indicate this year's "snow crop" is close to record low at the beginning of the year. Water content of the snow pack varies from practically nothing in the Lake county vicinity up to one-third normal in northeastern Oregon and in the Klamath Basin. Other areas of the state have less than one-third the usual January 1 snow cover.

SOIL MOISTURE

Heavy fall rains and some melting of early snow have satisfactorily recharged the soils in upper watershed areas. These well-primed soils will favorably affect runoff from the melting snow next spring.

RESERVOIR STORAGE

Water stored in 23 major reservoirs in the state is 83 percent of the 15 year average (1943-57), but is 145 percent of last years' amount on January 1.

Stored water supplies are the poorest in Malheur and Lake counties and in the Lost River area of Klamath county. However, these areas have considerably more stored water than last year on January 1.

STREAMFLOW

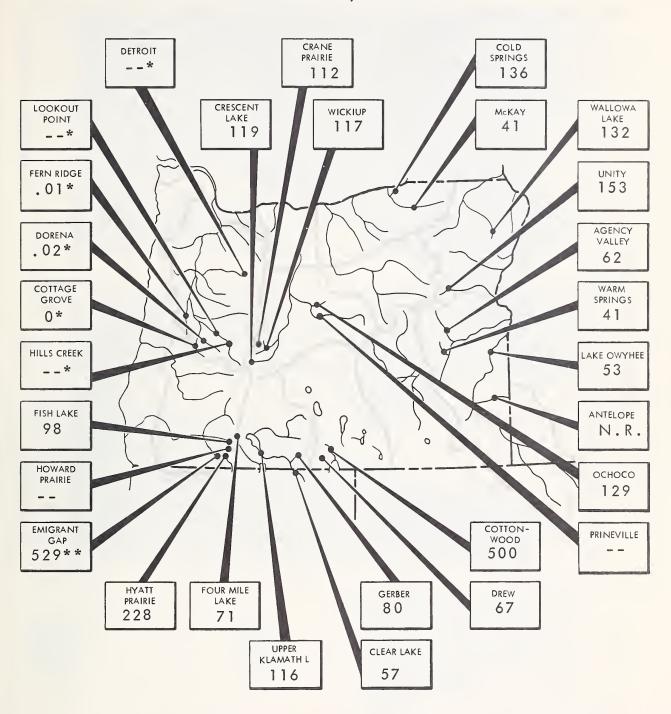
Flow of major streams in the state has been close to normal since October 1, except for a wide belt running through the state from northeast to southwest in which flows have been much above the expected amounts.

Although stored water supplies and soil moisture conditions are favorable for next season's irrigation operations, temperatures nearer normal will be needed for the balance of the winter to permit snow rather than rain to fall and accumulate on the upper watersheds.



STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

JANUARY 1, 1963

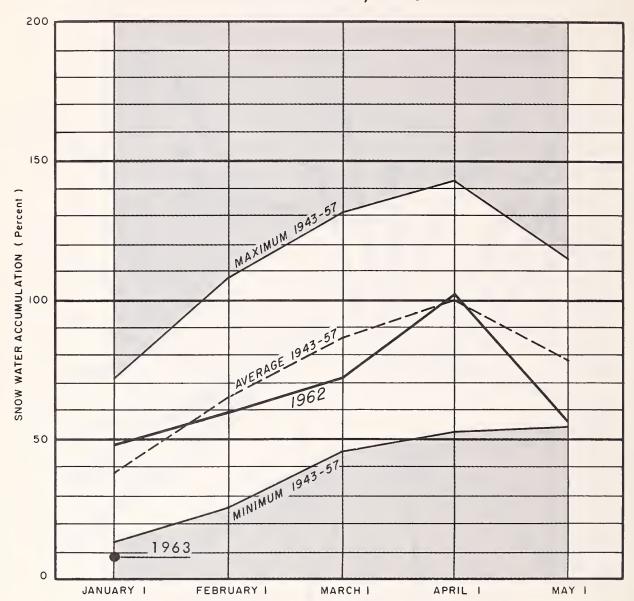


^{*-} Multiple purpose reservoir - space reserved primarily for flood runoff.
N.R.-No report.

^{**-}Capacity of reservoir greatly increased but current storage compared with previous average.

⁻⁻ Short record - no average for comparison.

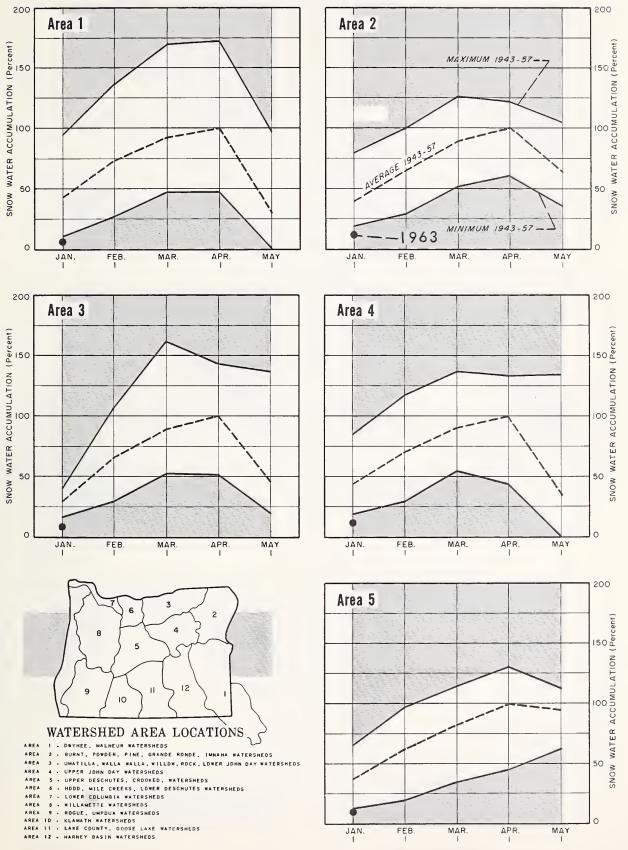
SNOW WATER ACCUMULATION in OREGON JANUARY 1, 1963



SNOW WATER ACCUMULATION in OREGON

(Percent of average maximum accumulation)

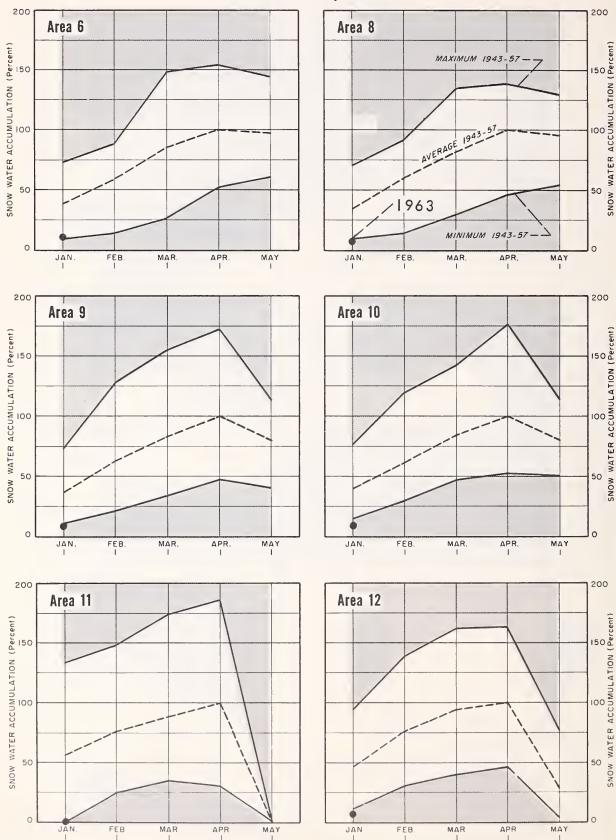
JANUARY 1, 1963



SNOW WATER ACCUMULATION in OREGON

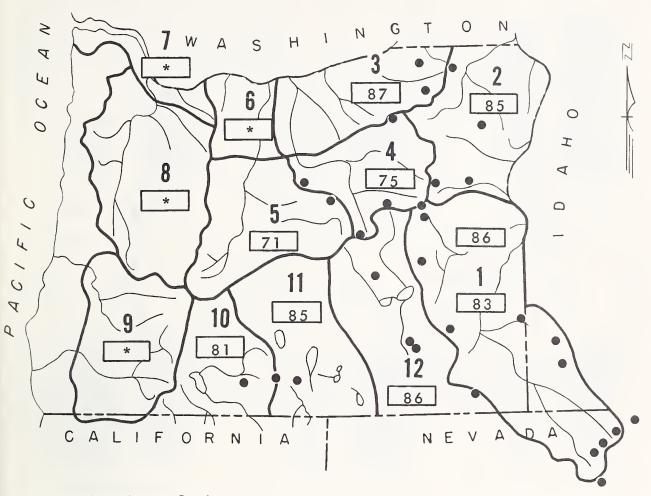
(Percent of average maximum accumulation)

JANUARY 1, 1963



MOUNTAIN SOIL MOISTURE in OREGON as percent of capacity

JANUARY 1, 1963



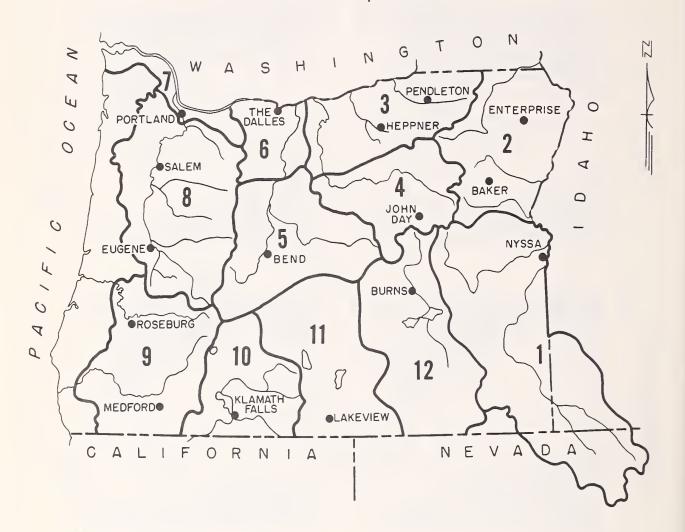
Soil Moisture Station

*Moisture studies not yet developed in these areas.

NOTE: The soil moisture figures published herein are <u>not</u> comparable to those published last year and earlier due to a change in the scale of evaluation. The new figures represent total moisture in the soil rather than moisture available to plants.

VALLEY PRECIPITATION in OREGON "

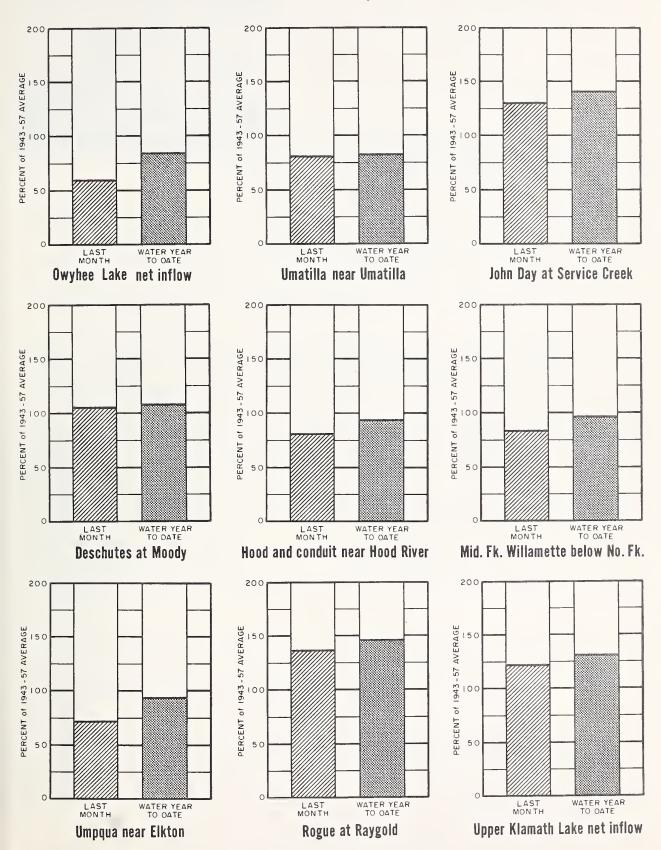
JANUARY 1, 1963



PRE	PRECIPITATION as PERCENT of the 1943 - 57 AVERAGE								
STATION	LAST MONTH	WATER b YEAR TO DATE	STATION	L A S T MON T H	WATER b YEAR TO DATE				
BAKER BEND BURNS ENTERPRISE EUGENE APT HEPPNER JOHN DAY KLAMATH FALLS	113 81 61 90 43 107 78 64	147 105 151 144 88 109 146 129	LAKEVIEW MEDFORD APT. NYSSA PENDLETON APT. PORTLAND APT. ROSEBURG APT. SALEM APT. THE DALLES	70 141 95 94 44 59 45 73	203 176 129 101 96 93 91 98				

CURRENT OREGON STREAMFLOW

JANUARY 1, 1963







WATER SUPPLY OUTLOOK OWYHEE, MALHEUR

WATERSHEDS

OREGON

as of JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The outlook for 1963 irrigation water supplies in Malheur County at this early winter date is reasonably good when one looks at present stored water supplies and good soil moisture conditions. However, present snow cover is close to the poorest of record due largely to above normal temperatures which caused rain rather than snow to fall on the watersheds. At least two, possibly three, months' time remains for additional snow accumulation.

SNOW COVER - There is slightly more snow on the Malheur River watershed, compared to the average for January 1, than on the Owyhee, but all of it totals up to only 12 percent or about one-tenth of the snow measured one year ago on January 1.

SOIL MOISTURE - Moisture content of the soils in the upper watershed of the Owyhee is reasonably good although not quite as satisfactory as last year and appears drier toward the eastern edge of the basin. It averages 83 percent of total capacity.

The soils in the Malheur River drainage are considerably wetter than last year and present moisture averages 86 percent of capacity compared with 73 percent one year ago.

RESERVOIR STORAGE - Owyhee reservoir contained 202, 100 acre feet on January 1 compared with 68,000 a.f. one year ago. Average storage in the 15 year period 1943–57 has been 377,800 a.f. This is a good start for the 1963 irrigation supply for the Owyhee Project.

Warmsprings reservoir contained 22,800 acre feet on January 1 compared with 10,600 acre feet a year ago. At the same date, Agency Valley reservoir holds 14,600 a.f. compared with 9,500 a.f. the previous year. Both reservoirs now hold about half the usual amount but have a good start for the season.

It is reported that the new Bully Creek reservoir may soon begin storing water in its 31,000 acre foot space for use next season on 750 acres of land served by the Vale-Oregon Irrigation District. Full use of water on some 5,000 acres is apparently not planned for this next season.

(continued on next page)

Although Antelope reservoir is unreported, the Jordan Valley Irrigation District ended the 1962 season with a reported carry-over of 2,600 acre feet of water.

STREAMFLOW - The rate of inflow to reservoirs in the period since October 1 is one of the best indications that fall rains have made good progress toward restoring moisture in the upper watershed soils. Flow into Owyhee has been 83 percent of average (1943-57). Flows into Agency Valley at 122 percent and Warmsprings at 185 percent of average seem to coincide with much better soil moisture conditions in these watersheds this season.

WATER SUPPLY OUTLOOK expressed as "Paar", "Fair" "Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

STREAM or AREA	FLOW PERIOD		RESERVOIR	USABLE	MEASUR	ED (First o	f Month)
STREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - 57 AVERAGE
Boulder Creek Bully Creek Cow Creek Jordan Creek Jordan Valley Irrig. Dist. McDermitt Creek Oregon Canyon Creek Owyhee Project Succor Creek Ten Mile Creek Vale Oregon Irrig. Dist. Warmsprings Irrig. Dist. Willow Creek	Forecasts the Febru report wh reach you February	ary 1 ich will about	Agency Valley Antelope Owyhee Warmsprings	60.0 55.0 715.0 191.0	14.6 f 202.1 22.8	9.5 0.0 68.0 10.6	23.6 2.5 377.8 55.2

STREAMFLOW FORECASTS a (1,000 Ac. Ft.) as of January 1, 1963

	FORECAST POINT	FORECAST	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT.
NO.	NAME	THIS YEAR	THIS YEAR		OF AVERAGE
2140	Malheur near Drewsey	с	April-Sept.	81	
	d	С	FebJuly	124	
2175	Malheur, North Fork at Beulah"	С	April-Sept.	64	
1825	Owyhee Reservoir net Inflow ^g	С	April-Sept.	430	
		С	FebJuly	594	

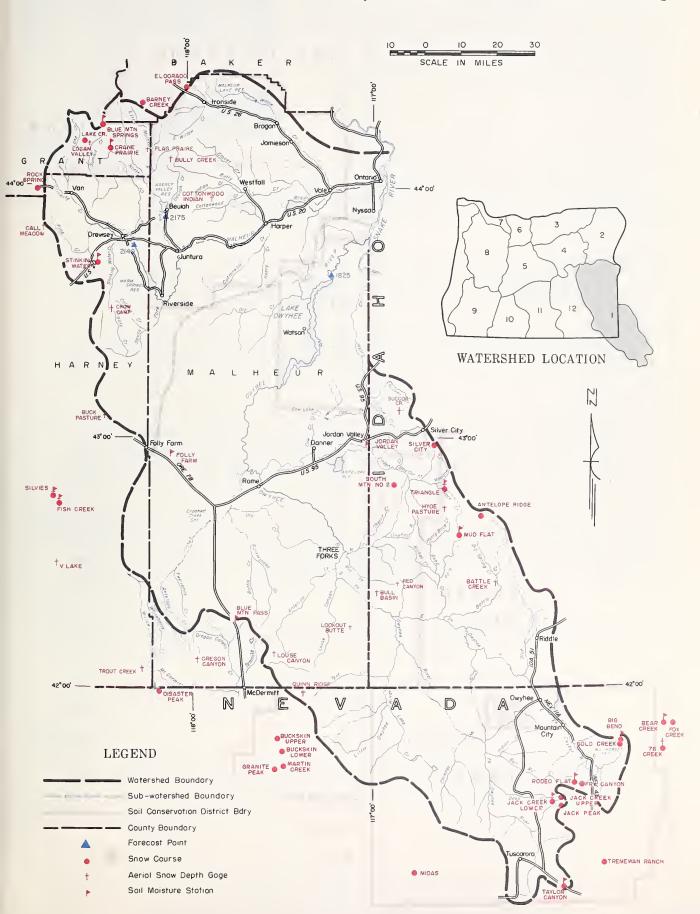
						•	
SOIL MOISTURE		PROFILE	(Inches)		SOIL MOISTU	RE (Inches)	
STATION		DEPTH	CAPACITY	DATE	THIS	LAST	2 YEARS
NAME	ELEVATION	Derini	OAI AOITT	DATE	YEAR	YEAR	AGO
Bear Creek (Nev.)	7800	72	16.9	10-31-62	7.0	8.7	8.6
Big Bend (Nev.)	6700	48	16.7	12-27-62	14.7 ^j	13.8	14.7
Blue Mountain Springs	5900	42	16.9	12-27-62	12.3	7.6	
Crane Prairie	5375	48	18.2	12-27-62	16.5		
Folly Farm	4450	30	12.5	12-19-62	9.0		
Jack Creek, Lower (Nev.)	6800	48	8.7	12-27-62	7.3	7.9	7.7
Jordan Valley	4250	48	19.3	12-19-62	14.9	14.3	
Mud Flat (Ida.)	5500	48	12.8	11-5-62	5.9	5.6	
Rodeo Flat (Nev.)	6800	42	11.0	12-27-62	10.6	11.0	
Stinking Water Summit	4800	48	21.9	12-19-62	20.9	20.7	21.2
Taylor Canyon (Nev.)	6200	48	15.1	h		11.6	11.8
Triangle (Ida.)	5150	48	16.2	11-5-62	12.0	13.9	
						9	

NOTE: The soil moisture figures published herein are <u>not</u> comparable to those published last year and earlier due to a change in the scale of evaluation. The new figures represent total moisture in the soil rather than moisture available to plants.

SNOW		CURI	RENT INFORMA	TION	PAST F	ECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CONTENT (Inches	
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE
Antelope Ridge (Ida.)	5900	с				
Barney Creek	5950	С				
Battle Creek (Ida.)	5700	с				
Bear Creek e (Nev.)	7800	12/31	12	2.9	8.1	

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow. (h) Not surveyed. (i) Nearest current data. (j) Partly estimated. (*) 1943-57 Adjusted average.

OWYHEE, MALHEUR WATERSHEDS



Owyhee, Malheur Watersheds

SNOW		CURI	RENT INFORMA	TION	PAST RECORD		
SNOW COURSE		DATE OF	SNOW DEPTH	WATER	WATER CONTENT (In		
NAME	ELEVATION	SURVEY	(Inches)	CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE	
Big Bend (Nev.)	6700	12/27	т	Т	3.3		
Blue Mountain Springs	5900	12/27	8	3.1	10.5	6.9*	
Buck Pasture e	5700	С					
Buckskin, Lower (Nev.)	6700	с					
Buckskin, Upper (Nev.)	7200	С					
Bull Basin ^e (Ida.)	5600	с				}	
Bully Creek ^e	5300	с			1		
Call Meadows ^e	5340	с					
Cottonwood-Indian ^e	4320	с					
Crane Prairie	5375	С					
Crow Camp e	5500	С					
Disaster Peak (Nev.)	6500	с					
Eldorado Pass	4600	12/28	T	T	1.5		
Fish Creek	7900	С					
Flag Prairie ^e	4750	С					
Fox Creek (Nev.)	6800	с					
Fry Canyon (Nev.)	6700	12/27	T	T	3.5		
Gold Creek (Nev.)	6600	12/27	T	T	2.5		
Granite Peak (Nev.)	7800	С			:		
Hyde Pasture ^e (Ida.)	5800	с					
Jack Creek, Lower (Nev.)	6800	12/27	T	T	1.8		
Jack Creek, Upper (Nev.)	7250	12/27	T	Т	4.8		
Jack Peak (Nev.)	8420	c					
Lake Creek	5120	12/27	1	0.1	6.0		
Logan Valley ^e	5100	c					
Lookout Butte e	5650	с	1			Ì	
Louse Canyon ^e	6440	с				1	
Martin Creek (Nev.)	6700	с					
Midas (Nev.)	7200	с					
Mud Flat e (Ida.)	5500	с					
Oregon Canyon e	6950	С					
Quinn Ridge e (Nev.)	6300	С					
Red Canyon e (Ida.)	6500	с					
Rock Spring	5100	12/28	1	0.2	2.3	2.7*	
Rodeo Flat (Nev.)	6800	12/27	T	T	2.5		
76 Creek (Nev.)	7100	c					
Silver City (Ida.)	6400	12/30	3	0.8	8.1	7.9	
Silvies	6900	с					
South Mountain #2 (Ida.)	6340	12/28	2	0.4	3.5	4.8	
Stinking Water	4800	12/27	T	T		2.1*	
Taylor Canyon (Nev.)	6200	12/27	0	0.0	1.8		
Tremewan Ranch (Nev.)	5700	12/27	υ	0.0	T		
Triangle ^e (Ida.)	5150	С					
Trout Creek e	7800	с					
"V" Lake e	6600	с					
Succor Creek (Ida.)	6100	С					



WATER SUPPLY OUTLOOK BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

as of JANUARY 1, 1963

U.S.D.A.SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in Northern Oregon at this early winter date is reasonably good in spite of a very poor start on the mountain snowpack accumulation which is close to the poorest ever recorded for this time of the year.

Favorable aspects of the water outlook are the greater than average stored water supplies and a high percentage of moisture recharge in the soils of the upper water-sheds.

SNOW COVER

Surveys at 14 snow courses show a complete absence of snow below 4500 feet elevation. The snowpack averages only one-third of last years' snow. Fortunately, there are 3 more months during which snow can be expected to fall on these watersheds.

SOIL MOISTURE

Above normal precipitation since October 1 has recharged the soils in the upper water-sheds to the point where they now hold 85 percent of their capacity. Last year at this date, they were wet only up to 67 percent of capacity.

RESERVOIR STORAGE

Total water stored in Wallowa Lake is 21,000 acre feet compared with 12,200 a.f. a year ago. Average storage on January 1 is 15,800 a.f.

Unity Reservoir has a total of 9,200 acre feet compared with 5,500 a.f. a year ago and an average storage of 6,000 a.f. on January 1.

STREAMFLOW

Flow of Burnt River since October 1 has been nearly double that of last year and is equal to the 15 year average (1943–57). Similarly storage flows of other streams in Baker, Union and Wallowa counties appears to confirm the adequate recharge of soils by the fall rains.

WATER SUPPLY OUTLOOK expressed as "Paor", "Fair"

TAILE JUIL OUTLOOK "Average" or "Excellent"					
STREAM or AREA	FLOW	PERIOD			
OTHERW OF AREA	SPRING SEASON	LATE SEASON			
Alder Slope Baker Valley Big Creek Clover Cr. (nr. N. Powder) Cove Durkee Eagle Valley Elgin Enterprise-Joseph Hereford-Bridgeport Imnaha River LaGrande-Island City Lostine-Wallowa No. Powder River-Wolf Cr. Pine Valley Powder River-Elk Creek Summerville Sumpter Valley Union-Hot Lake Unity	Forecasts the Febru report wh reach you February	ich will about			

DECEDVOID CTODACE /1 000 Ac C+)

RESERVOIR STORAGE	(1,000	Ac. ft.	January	1,1963		
RESERVOIR	USABLE	MEASURED (First of Month)				
	CAPACITY	THIS YEAR	LAST YEAR	1943 - 57 AVERAGE		
Unity	25.2	9.2	5.5	6.0		
Wallowa Lake	37.5	21.0	12.2	15.8		

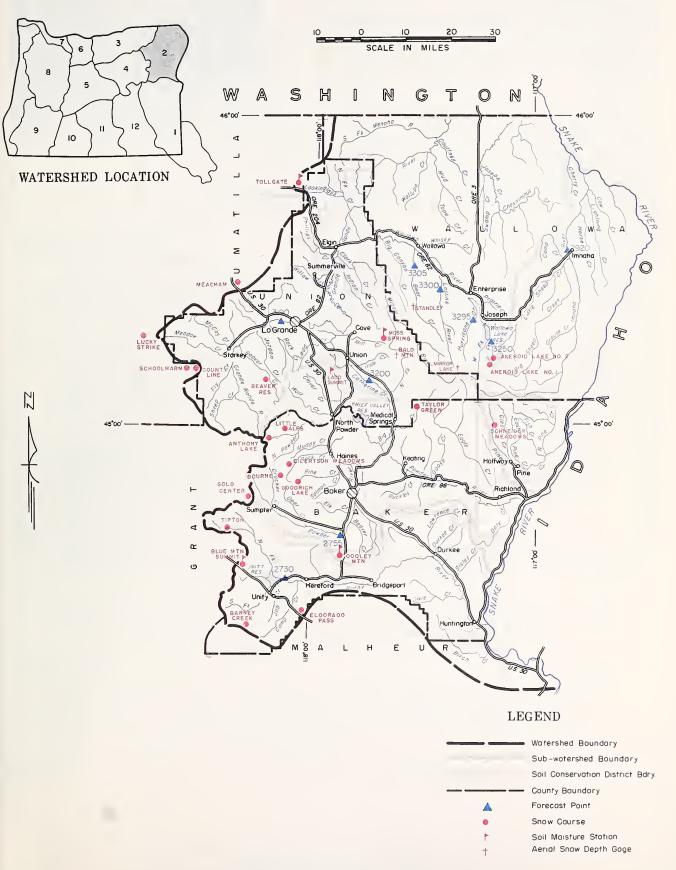
STREAMFLOW FORECASTS a (1,000 Ac. Ft.) as of January 1, 1963

NO.	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
3305	Bear near Wallowa	С	April-Sept.	74	
2730	Burnt near Hereford ^d	С	April-Sept.	45	
		С	FebJune	55	
3200	Catherine near Union	C	April-Sept.	73	
3190	Grande Ronde at LaGrande	С	March-Sept.	245	
		С	April-Sept.	202	
3295	Hurricane near Joseph	С	April-Sept.	49	
2920	Imnaha at Imnaha	С	April-Sept.	314	
3300	Lostine near Lostine	С	April-Sept.	133	
2755	Powder near Baker	С	April-Sept.	66	
		С	April-July	65	
3250	Wallowa, East Fork near Joseph d	С	April-Sept.	12.1	
		С	April-July	9.7	

SOIL MOISTURE		PROFILE	(Inches)		SOIL MOISTU	RE (Inches)	
STAT NAME	STATION NAME ELEVATION		CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
HAME	CCCVATION	<u> </u>	l				
Blue Mountain Summit Emigrant Springs Tollgate NOTE:	The soil moisture figure those published last y of evaluation. The nesoil rather than moist	ear and ea w figures	rlier due represent	to a change total moist	in the s	cale	9.3 19.0 20.6

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated. (h) Not surveyed. (i) Nearest current data. (j) Partly estimated. (*) 1943-57 Adjusted averages.

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



NOW		CUR	RENT INFORMA	TION	PAST	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAG
Aneroid Lake No. 1	7480	с				
Aneroid Lake No. 2	7000	c				
	j i	12/26	21	- 0	7.4.0	30.00
Anthony Lake	7125			5.8	14.6	12.6*
Bald Mountain (Ore.)	6700	12/31	33	9.9	18.0	
Barney Creek	5950	c				
Beaver Reservoir	5340	12/28	6	1.3	6.1	5.1*
Big Sheep ^e	6200	С				
Blue Mountain Summit	5098	12/28	7	2.4	4.8	4.3
Bourne	5800	С				1
County Line	4800	12/31	1	0.2	3.6	3.4*
Dooley Mountain	5430	12/28	6	1.6	4.9	4.0
Eilertson Meadows	5400	12/26	5	1.8	6.0	5.2*
Eldorado Pass	4600	12/28	т	T	1.5	
Gold Center	5340	c	_	_	1.0	
Goodrich Lake	6775	c				
	6200	12/26	10	2.1	9.0	
Little Alps	• • • • • • • • • • • • • • • • • • •		10	Z.1	9.0	
Lucky Strike	5050	c				
Meacham	4300	12/20	0	0.0	4.5	
Mirror Lake ^e	8200	С				
Moss Spring	5850	12/27	8	2.4	11.6	10.8
Schneider Meadows	5400	С		ļ		
Schoolmarm	4775	12/31	1	0.1	2.9	2.8*
Standley ^e	7400	С				
Taylor Green	5740	с			1	1
Tipton	5100	12/28	5	2.0	5.5	5.3*
Tollgate	5 0 7 0	12/20	10	3.2	11.7	
TV Ridge ^e	5670	c	1	0.2	11.7	
IV Klage	1 3070					
		1				
		1				
		1		•		
		1			1	
		1			1	



WATER SUPPLY OUTLOOK UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS OREGON

as of JANUARY 1, 1963

U.S.D.A.SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in the Umatilla-Walla Walla region of Oregon is only fair with mountain snowpack practically non-existent. Stored water supplies are currently much better than last year, but below average for this date.

SNOW COVER

There is no snow at all below 4500 feet elevation. The January 1 surveys find this year's snow to be only 14 percent of that on hand one year ago at this date. Fortunately there are at least two, maybe three, months' time remaining for accumulation of a good snowpack.

SOIL MOISTURE

Fall rains have been about normal and measurements of moisture in the upper watersheds indicate the recharge has come up to 87 percent of total capacity. This is better than the moisture conditions a year ago.

RESERVOIR STORAGE

Cold Springs reservoir now contains 27,450 acre feet compared with 19,000 acre feet one year ago. The average storage on January 1 is 20,200 a.f.

McKay reservoir has 10,640 acre feet in storage compared with 4,700 a.f. a year ago. The average storage at the beginning of the year is 26,000 acre feet.

STREAMFLOW

Flow of the Umatilla River at Umatilla* has been 82 percent of average since October 1. Inflow to McKay reservoir has been more than double that of last year up till now. Future streamflow will depend greatly on total precipitation and on a normal accumulation of a mountain snowpack.

* Preliminary data from U. S. Geological Survey, Portland, Oregon

WATER SUPPLY OUTLOOK expressed as "Paar", "Fair" "Average" ar "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1,1963

STREAM or AREA	FLOW I	PERIOD	RESERVOIR	USABLE	MEASUR	RED (First o	of Month
SINEAW OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - 5 AVERAGE
Birch Creek Butter Creek Butter Creek Dry Creek Dugger Creek Johnson Creek McKay Creek Mill Creek Mud Creek Pine Creek Rhea Creek Rock Creek Umatilla River (Cold Springs Reservoir) Umatilla River, Main Umatilla River, Little Walla Walla River, Little Walla Walla River, Main Walla Walla River, N. Fork Walla Walla River, S. Fork Willow Creek	the Febru report wh reach you	ich will about	Cold Springs McKay	50.0 73.8	27.4	19.0	20. 26.

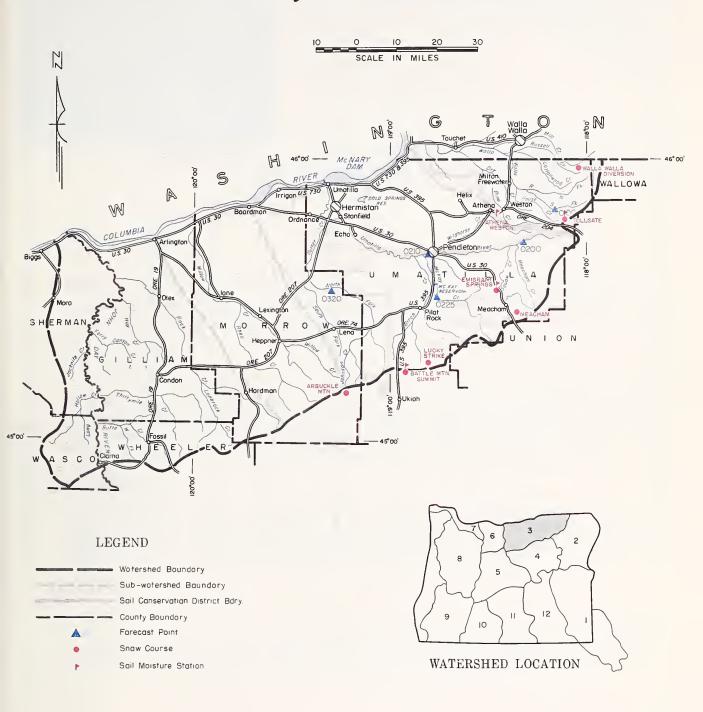
STREAMFLOW FORECASTS a(1,000 Ac. Ft.) as of January 1, 1963

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
0320	Butter Creek near Pine City	С	April-Sept.	9.8	
0225	McKay near Pilot Rock	С	FebSept.	61	
		С	April-Sept.	31	
0200	Umatilla near Gibbon	С	April-Sept.	96	
0210	Umatilla at Pendleton	С	April-Sept.	187	
		С	April-July	182	
0100	Walla Walla, South Fork near Milton		April-Sept.	76	
0100	nazza nazza, ovaza zona zizazon	c c	April-July	62	
		ŭ	npx11=3 dry	02	

07471011		1	T		T		
STATION		DEPTH	CAPACITY	DATE	THIS	LAST	2 YEARS
NAME	ELEVATION		YEAR YEAR			AGO	
Athena-Weston	1700	48	18.7	12-20-62	15.0		
Battle Mountain Summit	4340	48	13.8	12-20-62	11.7		
Emigrant Springs	3925	48	22.3	12-20-62	19.9	15.0	19.0
Tollgate	5070	48	22.2	12-20-62	20.2	20.4	20.6
1	The soil moistu	last year	and earli	er due to a	change i	n the scal	le
	of evaluation. soil rather tha					e In the	

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Nearest current data. (h) Partly estimated. (••) Average for 5 or more years in base period.

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS



Umatilla, Walla Walla, Willow, Rock, Lower John Day Watersheds

10W		CUR	RENT INFORMA	TION	PAST F	ECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAG
nrbuckle Mountain Battle Mountain Summit Emigrant Springs Lucky Strike	5400 4340 3925 5050	c 12/20 12/20 c	0	0.0	3.4 2.9	
Meacham Collgate	4300 5070	12/20 12/20	0	0.0 3.2	4.5 11.7	
						ta _g



WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS

OREGON

as of JANUARY 1, 1963

U.S.D.A.SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1963 water supply outlook is fair for the Upper John Day Basin at this early date. Snow cover is well below normal, but soil moisture is much better than last year at this time and is expected to help make up for the deficit in snow.

SNOW COVER

Snow cover is conspicuously absent below 4500 feet elevation. The area, as a whole, is only 31 percent of average and about one-fifth of last year on January 1. Fortunately about three-fifths of an average year's snow accumulates after January 1, so there is a chance to "catch up" during the next two or three months.

SOIL MOISTURE

Watershed soil moisture is much better than last year. Moisture measurements made the last few days of December indicate the soil profile now averages 75 percent of total capacity. Last year it was only 51 percent of total capacity.

STREAMFLOW

Flow of the John Day at Service Creek was 131 percent of average for December and averages 139 percent of the 15 year average (1943–57) for the October-December period. This verifies good soil moisture conditions in the area.

WATER SUPPLY OUTLOOK expressed as "Poor", "Foir" "Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1,1963

STREAM or AREA	FLOW	PERIOD	055501010	SERVOIR USABLE		SURED (First of Mont		
STREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - AVERAG	
Beech Creek Beech Creek-Fox-Long Cr. Bridge-Mountain Creeks Camas Creek Cherry Creek Indian-Pine Creeks John Day River, Main Fork John Day River, Mid. Fork John Day River, N. Fork John Day River, S. Fork Monument-Kimberly Strawberry Creek	Forecasts the Febru report wh reach you February	ich will about						

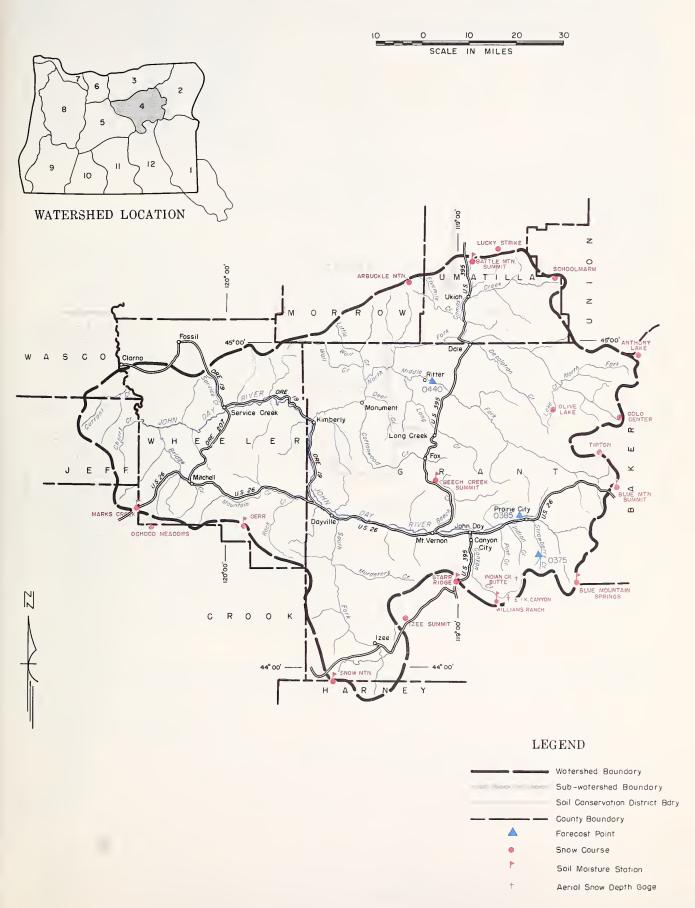
STREAMFLOW FORECASTS a(1,000 Ac. Ft.) as of January 1, 1963

NO.	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
				5.4	
0385	John Day at Prairie City	c	April-Sept.	5 4 59	
0440	John Day, Middle Fork at Ritter	c c	March-July April-Sept.	135	
0440	Join Day, Middle Fork at Kitter	c	March-July	158	
0375	Strawberry near Prairie City	С	April-Sept.	9.1	
		1			1
		ł			

STATION					THIS	LAST	2 YEARS	
NAME	ELEVATION	DEPTH	CAPACITY	DATE	DATE YEAR		AGO	
Battle Mountain Summit Blue Mountain Springs Blue Mountain Summit Derr Marks Creek Snow Mountain Starr Ridge	4340 5900 5100 5670 4540 6300 5150	48 42 36 24 36 48 36	16.8 16.9 16.8 g 14.1 g	12-28-62 12-27-62 12-28-62 12-27-62 12-27-62	11.9 12.3 11.9 10.0	7.6 5.8 9.5	9.3	
thos of e	soil moisture figure e published last yea valuation. The new rather than moistur	ar and ear: figures re	lier due to epresent to	o a change otal moistu	in the sca			

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Nearest current data. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

UPPER JOHN DAY WATERSHEDS



Upper John Day Watersheds

NOW		CUR	RENT INFORMA	TION	PAST F	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches)
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE
	7105	19/90	67	F 0	74.0	20.00
Anthony Lake	7125	12/26	21	5.8	14.6	12.6*
Arbuckle Mountain	5400	C				
Battle Mountain Summit	4340	12/20	0	0.0	3.4	
Beech Creek Summit	4800	12/28	0	0.0	4.7	2.2*
Blue Mountain Spring	5900	12/27	8	3.1	10.5	6.9*
Blue Mountain Summit	5098	12/28	7	2.4	4.8	4.3
Derr	5670	С				
East Fork Canyon ^e	5700	С				
Gold Center	5340	С				
Indian Creek Butte ^e	6550	С				
Izee Sumnit	5293	12/27	0	0.0	5.5	4.6*
Lucky Strike	5050	C				
Marks Creek	4540	12/27	0	0.0	6.1	
Ochoco Meadows	5200	c				1
Olive Lake	6000	12/28	9	2.3	11.6	8.4*
Schoolmarm	4775	12/31	l	0.1	2.9	2.8*
Snow Mountain	6300	c	_	""	2.3	2.0
Starr Ridge	5150	12/27	0	0.0	4.5	2.8*
		12/28	5			
lipton	5100		3	2.0	5.5	5.3*
Williams Ranch	4500	g				
				1		
				İ		
	İ					
		I				
	1					
			•			1



WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

as of JANUARY 1, 1963

U.S.D.A.SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1963 water supply outlook for Deschutes, Jefferson, and Crook counties is good in spite of a conspicuously short snow pack. Reservoir storage is above average and watershed soils are wetter than last year on January 1.

SNOW COVER

Measurements on four key snow courses in this area average only about 24 percent of the usual amount for January 1 and only 17 percent of last year on this date. Little, if any, snow was present below 4,500 feet elevation on the watersheds.

SOIL MOISTURE

Moisture in the top 3-4 feet of soil at the Marks Creek station above Ochoco reservoir is 71 percent of total capacity. This is slightly better than last year due to good fall rains over most of the area.

RESERVOIR STORAGE

Ochoco reservoir now holds 27,300 acre feet or 129 percent of the january 1 average. Last year, it held only 6,200 acre feet.

Prineville reservoir has spilled some water to make room for spring runoff and now holds 92, 100 acre feet which is 95 percent of last years' storage on January 1.

Crane Prairie, Crescent Lake, and Wickiup are all above average and above last year. They hold 39,800, 51,800, and 119,700 acre feet respectively.

STREAMFLOW

Streamflow on the main Deschutes has been a little better than average since October 1 as a result of good fall rains priming the soils.

The Deschutes at Moody* has averaged 108 percent of the 1943-57 average for the October-December period.

Flow of the Crooked River since October 1 has been considerably greater than average with better than 40,000 acre feet released from Prineville to make room for flow yet to come.

* Preliminary data furnished by U. S. Geological Survey, Portland, Oreton

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW	PERIOD
STREAM OF AREA	SPRING SEASON	LATE SEASON
Arnold Irrigation District Bear Creek Beaver Creek Camp Creek Central Ore. Irrig. Dist. Crooked River Deschutes River Hay-Trout Creeks Lone Pine Irrig. Dist. Mill Creek North Unit Irrig. Dist. Ochoco Creek Sisters Irrigation Dist. Snow Creek Irrig. Dist. Squaw Creek Irrig. Dist. Swalley Ditch Tumalo Project Walker Basin Irrig. Dist.	Forecasts the Febru report wh reach you February	nich will nabout

RESERVOIR STORAGE (1 000 Ac Et) Tanuary 1

	USABLE	MEASUR	ED (First o	f Month)
RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - 57 AVERAGE
Crane Prairie Crescent Lake Ochoco Prineville Wickiup Note: The U.S. Buthat dead state acre feet mass storage figur	orage in y be inc	92.1 119.7 Reclamathe amount of the amount o	ount of n the cu	5360

STREAMFLOW FORECASTS a (1,000 Ac. Ft.) as of January 1, 1963

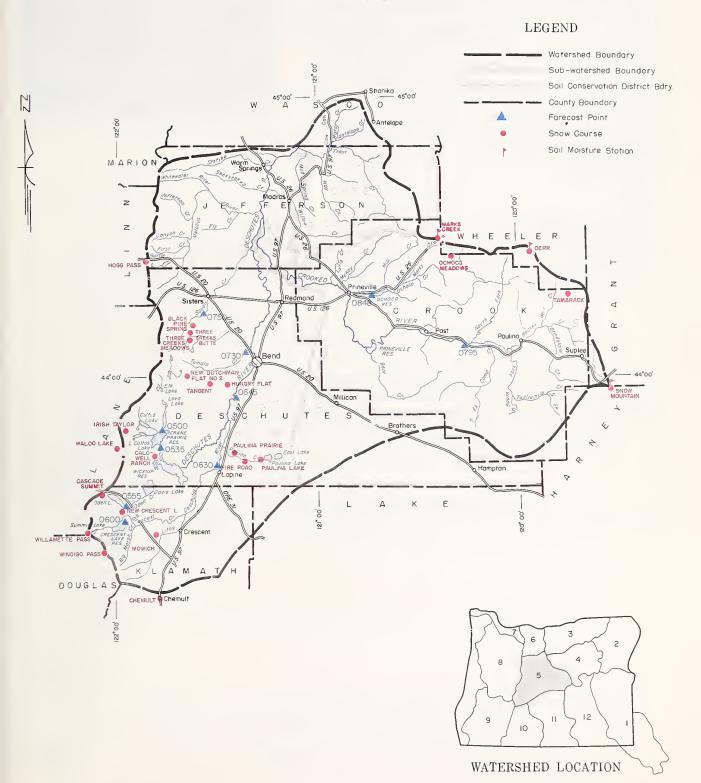
FORECAST POINT			FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT
NO.	NAME	THIS YEAR		AVERAGE	OF AVERAGE
0535	Crane Prairie Reservoir total Inflow	С	April-Sept.	143	
0600	Crescent at Crescent Lake d	С	March-July	28	
		С	April-Sept.	31	
0795	Crooked near Post	С	FebJuly	207	
		С	April-Sept.	129	
0645	Deschutes at Benham Falls d	С	April-Sept.	602	
		С	April-July	404	
0500	Deschutes below Snow Creek	С	April-Sept.	74	
0630	Deschutes, Little near Lapine d	С	FebJuly	129	
		С	April-Sept.	113	
0848	Ochoco Reservoir net Inflow	С	FebJune	51	
		С	April-Sept.	32	
0555	Odell near Crescent	С	April-Sept.	34	
0750	Squaw near Sisters	С	April-Sept.	55	
0730	Tumalo near Bend d	С	April-Sept.	55	

OIL MOISTURE				PROFILE (Inches)		SOIL MOISTURE (Inches)			
STATION NAME ELEVATION			DEPTH	CAPACITY	DATE	THIS	LAST	2 YEARS	
			ELEVATION	1	CALACITY	DATE	YEAR	YEAR	AGO
Derr Marks Creek Snow Mountain			5670 4540 6300	2 4 36 48	14.1	i 12-27-62 i	10.0	9.5	10.2
	NOTE:	The soil mothose public of evaluation rather	shed last yon. The ne	year and ea ew figures	arlier due represent	to a chang total mois	e in the s	scale	

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated. (°) 1943-57 Adjusted average. (h) Nearest current data.

UPPER DESCHUTES, CROOKED WATERSHEDS





Upper Deschutes, Crooked Watersheds

0W		CUR	RENT INFORMA	TION	PAST	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAG
Black Pine Spring	4600	С				
Caldwell Ranch	4400	C				
Cascade Summit	4880	12/31	12	4.3	18.7	14.9*
Chemult	4760	12/27	4	1.1	5.8	5.5*
Derr	5670	c	1		0.0	0.0
Fire Road	5050	c				
Hogg Pass	4755	12/27	12	4.1	25.0	18.4
Hungry Flat	4400	c 12/2/	12	4.1	23.0	15.4
	5500	c				
Irish-Taylor	4540	12/27	0	0.0	6.1	
Marks Creek	4700		0	0.0	0.1	
Mowich	4800	С				
New Crescent Lake		С				
New Dutchman Flat No. 2	6400	С				
Ochoco Meadows	5200	С				
Paulina Lake	6330	С				
Paulina Prairie	4285	С				
Snow Mountain	6300	С			1	
[amarack	4800	С				
l'angent	5400	С				
Three Creeks Butte	5200	С				
Three Creeks Meadows	5600	С				
Waldo Lake	5500	С				
Willamette Pass	5600	с				
Windigo Pass	5800	c		ł	1	
_						
		1				
				·	•	
				1		
	1					
		1				



WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS OREGON

as of January 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in Hood River – Wasco County area is only fair at this early winter date. The snow pack is one of the poorest ever measured. Soil moisture is good as a result of near average rainfall since October 1st, and should favor runoff if subsequent winter storms produce a good snow pack on the watershed.

SNOW COVER

Water content of the mountain snow pack is only one-fourth of the January 1 average for the 1943-57 period and 16 percent of last January 1st. Warm temperatures have melted any snow that fell below about 3700 feet. Fortunately, there are two to three remaining months during which snow can accumulate if nearer normal temperatures prevail.

SOIL MOISTURE

Watershed soils have been fairly well primed by near average rainfall for the October-December period.

RESERVOIR STORAGE

Storage in Clear Lake is 3,200 acre feet. Last year it held 2,900 acre feet on January 1.

STREAMFLOW

The flow of Hood River* was <u>81</u> percent of the 1943-57 average for December and averages 94 percent for the October-December period.

*Preliminary data from U. S. Geological Survey, Portland, Oregon

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

STREAM or AREA	FLOW PERIOD		RESERVOIR	USABLE	MEASURED (First of Month)		
STREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - 5 AVERAG
Aldridge Ditch Badger Creek Dee Irrigation District Gast Fork Irrig. Dist. Farmers Irrig. Dist. Hood River Irrig. Dist. Juniper Flat Middle Fork Irrig. Dist. Mile Creeks Mill Creek Mount Hood Irrig. Dist. Crock-Gate-Threemile Crs. Cygh Creek White River	Forecasts the Febru report wh reach you February	nich will n about	Clear Lake		3.2	2.9	

STREAMFLOW FORECASTS a(1,000 Ac. Ft.) as of January 1, 1963

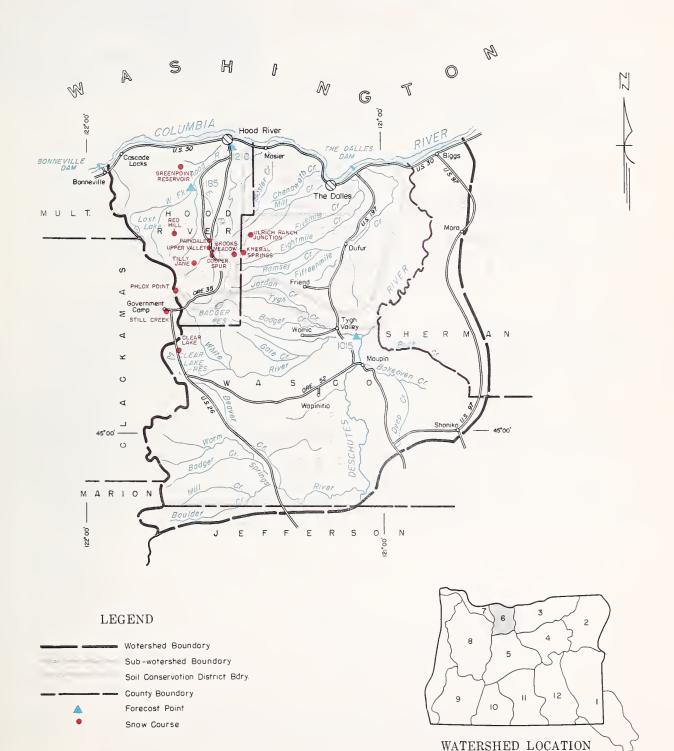
NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
1210	Hood near Hood River d	c c	April-Sept. April-July	365 311	
1185	Hood, West Fork near Dee	c c	April-Sept. April-July	174 151	
1015	White below Tygh Valley	c c	April-Sept. April-July	173 161	

NOW		CUR	RENT INFORMA	TION	PAST	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER	WATER CON	TENT (Inches)
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE
Brooks Meadows Clear Lake Clear Lake (Experimental) Cooper Spur Greenpoint Reservoir Knebal Springs Parkdale Phlox Point Red Hill Still Creek Tilly Jane Ulrich Ranch Junction Upper Valley	4300 3500 3500 3490 3400 3850 1770 5600 4400 3700 6000 3350 2530	c 12/27 12/27 12/31 c c 12/31 12/26 c 12/27 c 12/31	0 0 T 0 18 6	0.0 0.0 T 0.0 8.7 2.2	5.3 6.8 5.9 0.0 35.3 12.4	29.8*

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated. (**) 1943-57 Adjusted average. (***) Average for 5 or more years in base period.

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS





Hood, Mile Creeks, Lower Deschutes Watersheds



WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

*as of*JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1963 water supply outlook for the Columbia River and its tributaries is for below normal flow during the snowmelt season. Climatic conditions during the fall months of 1962 have been recorded as above normal rainfall and resultant streamflow. Temperatures have been much above normal. Such snowfall as has occurred in the mountains has melted except at the highest mountain elevations.

SNOW COVER

The existing snowpack in mountain areas over all the basin is extremely deficient except for the Continental Divide in Northern Montana. Snow courses at lower mountain elevations are bare. Those at higher elevations have about one-half of the usual seasonal accumulation to date.

SOIL MOISTURE

The water supply outlook is somewhat better than the present snow cover would indicate. Mountain soils are wet except for some sections of the Upper Snake River drainage, and flow of streams during the early winter months indicate well-primed watersheds. Reservoir storage for the principal irrigated areas along the Snake is near average. Some deficiency in storage exists on the Snake and Lower Columbia tributaries in Oregon. Further, the longer segment of the snowfall season lies ahead.

STREAMFLOW

The flow of the Columbia River at The Dalles * has been above normal since October 1st.

Month	Percent of Normal Discharge (1943–57)
October	111 adjusted for storage
November	116 " " "
December	124 " " "

^{*}From preliminary data furnished by U. S. Geological Survey, Portland, Oregon

STREAMFLOW FORECASTS a(1,000 Ac. Ft.) as of January 1, 1963

NO.	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
1057	Columbia at The Dalles	c	April-Sept. April-June	106,100 72,000	

HISTORICAL DATA (Columbia River at The Dalles)

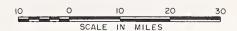
V=45	S	TREAMFLOW C(1,000 A.F.)	PEAK ^e	5475
YEAR	APR SEPT.	APR. — JUNE	MAY - JUNE	(1,000 c.f.s)	DATE
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23
1960	97,000	64,000	48,000	442	June 6

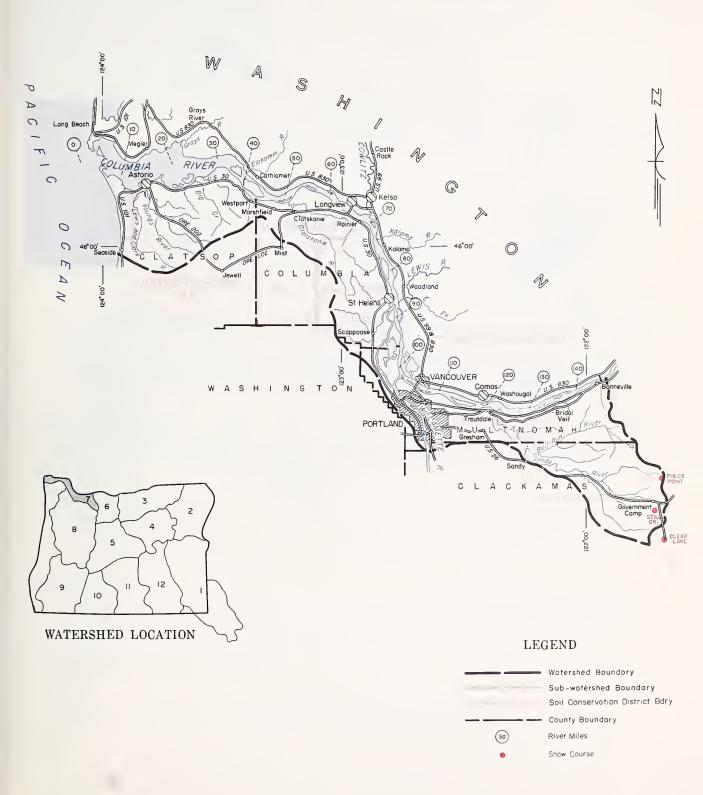
LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria) f

<i>a</i>				DRAINA	GE DISTRICT PUMP	PHOUSE		
VANCOUVER g	FLOW AT	SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
GAGE (Wegiher Bu.)	THE DALLES (1,000 c.f.s)				RIVER MILES			
(Wediner Bu.)	(1,000 c.r.s)	118.9	96. 0	91.0	77. 0	62.0	52.0	47. 0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L. All other readings are in feet above M.S.L.

LOWER COLUMBIA WATERSHEDS









WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

as of JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 water supplies in the Willamette Valley is only fair as of this early date. Snow cover is absent below 4,500 feet elevation and measurements at higher elevation indicate one of the poorest years of record.

SNOW COVER

Snow measurements at key courses along the Cascades show only 16 percent of the January 1 average for the 1943-57 period and only 12 percent of the snow measured last year at this time. Warmer than normal temperatures have melted the snow below 4,500 feet and valley precipitation has been a little below average for the October-December period.

SOIL MOISTURE

Watershed soils have been fairly well primed by melting snow at higher elevations and by near average fall rains lower on the watershed and should favor runoff.

RESERVOIR STORAGE

The six multi-purpose reservoirs on Willamette tributaries are operated according to a pre-arranged flood control plan by the U. S. Corps of Army Engineers. These reservoirs will be filled as runoff begins this spring.

STREAMFLOW

Streamflow during December was 82 percent of the 1943-57 average on the Middle Fork of the Willamette*. The October flow was about 31 percent above average with the November flow about average, making the average for the period October-December 95 percent.

* Preliminary data from U. S. Geological Survey, Portland, Oregon

WATER SUPPLY OUTLOOK expressed os "Poor", "Foir" "Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

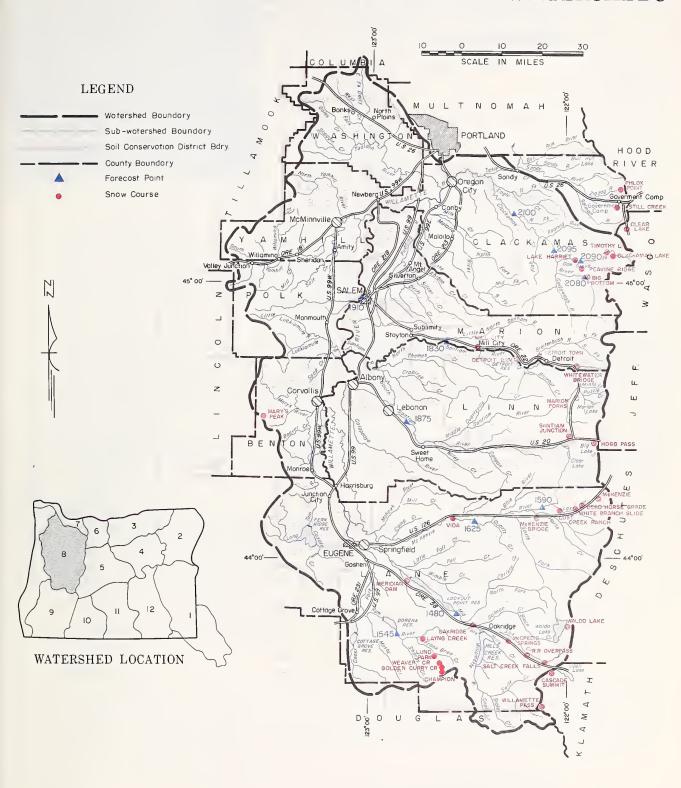
STREAM or AREA	FLOW PERIOD		RESERVOIR	USABLE	E MEASURED (First o		
STREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 AVER
Calapooya Clackamas McKenzie Molalla Santiam, North Santiam, South Willamette, Coast Fork Willamette, Middle Fork	Forecasts the Febru report wh reach you February	ich will about	Cottage Grove Detroit Dorena Fern Ridge Hills Creek Res. Lookout Point *Multiple purpose reservoir—space reserved primarily for flood runoff.	30.8* 299.9* 70.5* 94.2* 249.0* 337.2*	0.0 0.1 0.2 0.0	0.0 26.1 0.1 0.2 7.0 31.3	3. - 5. 15. -

STREAMFLOW FORECASTS a(1,000 Ac. Ft.) as of January 1, 1963

	FORECAST POINT	FORECAST	FORECAST PERIOD	1943-57	THIS YEAR AS PERCENT.
NO.	NAME	THIS YEAR		AVERAGE	OF AVERAGE
2080	Clackamas at Big Bottom	С	April-Sept.	184	
		С	April-July	150	
2100	Clackamas at Estacada	С	April-Sept.	879	
		С	April-July	763	
2095	Clackamas above Three Lynx	С	April-Sept.	674	
1		С	April-July	578	
1 5 90	McKenzie at McKenzie Bridge	С	April-Sept.	640	
1		С	April-July	488	
1625	McKenzie near Vida	С	April-Sept.	1362	
		С	April-July	1120	
2090	Oak Grove Fork above Power Intake	С	April-Sept.	198	1
		С	April-July	156	
1545	Row near Dorena	С	April-Sept.	114	1
	d	С	April-July	109	
1830	Santiam, North at Mehama "	С	April-Sept.	968	
		С	April-July	866	ŀ
1875	Santiam, South at Waterloo	С	April-Sept.	652	
l		С	April-July	616	
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	С	April-Sept.	909	
		С	April-July	804	
1910	Willamette at Salem ^d	С	April-Sept.	5461	
		С	April-July	4942	
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	(a) Assurate and all the control of				

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

WILLAMETTE WATERSHEDS



Willamette Watersheds

Wons		CUR	RENT INFORMA	TION	PAST F	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches)
NAME	ELEVATION	SURVEY	(Inches)	(inches)	LAST YEAR	1943-57 AVERAGE
Big Bottom	9110	19/20		0.0		0.05
Cascade Summit	2118	12/30 12/31	0	0.0	T	2.6*
	4880 4500		12	4.3	18.7	14.9*
Champion Clackamas Lake	3400	1/2 c	0	0.0	12.4	10.5*
Clear Lake	3500	12/27	0	0.0	. .	
Clear Lake (Experimental)	3500	12/27	0		5.3	
Dead Horse Grade	3800	1/2	0	0.0	6.8	0.7*
Detroit Town	1610	12/27	0	0.0	11.6	8.7*
Detroit Dam	1580	12/27	0	0.0	0.0 0.0	0.3
Golden Curry Creek	3136	1/2	0	0.0	0.0	0.4
Hogg Pass	4755	12/27	12	4.1		4.3*
Lake Harriet	2045	12/2/	0		25.0	18.4
Layng Creek	1200	1/2	0	0.0	T	1.1*
Lost Creek Ranch	1956	1/2	0	0.0	0.0	T
Lund Park	1740	1/2	0 1	0.0 0.0	2.7	0.0
Marion Forks	2730	12/27	0	0.0	0.0 7.6	1.4
Marys Peak	3620	c 12/2/	0	0.0	/.0	5.7
McCredie Springs	2120	12/31	0	0.0	0.0	0.5
McKenzie	4800	1/2	14	5.2	30.4	0.5
McKenzie Bridge	1372	1/2	0	0.0	0.0	20.4*
Meridian Dam	750	12/31	0	0.0	0.0	T 0.0
Mill City	826	12/31	0	0.0		
Oakridge	1310	12/2/	0	0.0	0.0	0.0
Peavine Ridge	3500	g g		0.0	0.0	0.1
Phlox Point	5600	12/26	18	8.7	35.3	29.8*
Railroad Overpass	2750	12/31	0	0.0	0.0	1.4*
Salt Creek Falls	4000	12/31	0	0.0	10.0	7.1*
Santiam Junction	3990	12/31	4	1.0	15.9	10.7
Still Creek	3700	12/27	6	2.2	12.4	11.8*
Timothy Lake	3295	12/30	T	T	7.3	11.0"
Vida	800	1/2	0	0.0	0.0	0.0
Waldo Lake	5500	c	0	0.0	1 0.0	0.0
Weaver Creek	2440	1/2	0	0.0	0.0	0.4
White Branch Slide	2800	1/2	0	0.0	3.8	3.4*
Whitewater Bridge	2175	12/27	l ő	0.0	2.9	3.2*
Willamette Pass	5600	c .		0.0	2.3	0.2
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WATER SUPPLY OUTLOOK ROGUE, UMPQUA, WATERSHEDS OREGON

as of JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies for the Rogue-Umpqua area at this early winter date is fairly good although the mountain snow pack is close to the poorest of record. Stored water supplies are better than a year ago and soils in the mountain watersheds have been well recharged.

SNOW COVER

Practically no snow exists below 4,000 feet at the beginning of the year. Water content of the snow pack above 4,000 feet is one-fourth of the 15 year average (1943-75) and only one-fourth of last years' snow at this date. Fortunately, at least two and possibly three months remain for snow to accumulate in the mountains.

SOIL MOISTURE

Heavy fall precipitation * (176 percent normal since October 1 at Medford) which resulted in substantial flooding on Rogue River, has amply recharged the soils in the watersheds.

RESERVOIR STORAGE

Stored water supplies for the Medford and Rogue River Valley Irrigation Districts, held in Fourmile and Fish Lake reservoirs, are about 80 percent of the average storage, but 135 percent of last years' figure on this date. Total water now stored is about 10,000 acre feet compared with 7,400 a.f. a year ago.

Talent Irrigation District water supplies, held in Emigrant, Hyatt and Howard Prairie reservoirs, now total about 74,000 acre feet compared with 43,000 a.f. one year ago on January 1.

STREAMFLOW

Flow of Rogue River at Raygold** has averaged 145 percent of the 1943-57 average since October 1. Likewise, flow of the Umpqua has been well above average. In spite of all this flooding and above average streamflow, it is interesting to note that flow of these southwestern Oregon streams dropped off to about one-half normal in the last week of the old year.

- * From River Forecast Center, U. S. Weather Bureau, Portland, Oregon
- ** Preliminary data from U. S. Geological Survey, Portland, Oregon and Pacific Power and Light Company, Medford, Oregon

W.T. FROST AND BOB L. WHALEY

U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE - PORTLAND 4. OREGON

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

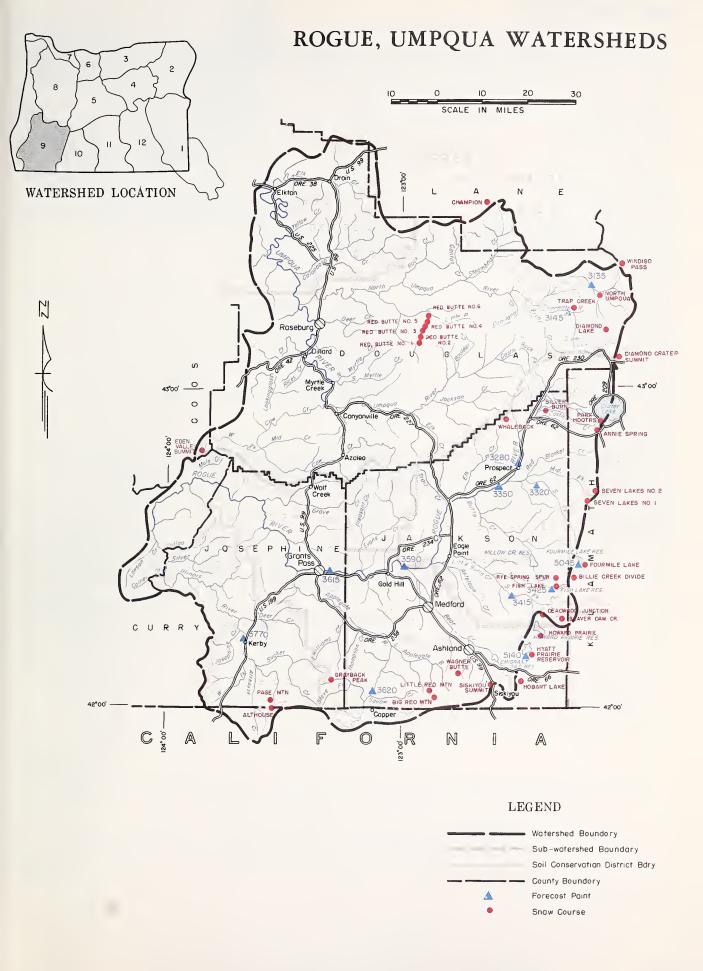
RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

STREAM or AREA	FLOW	PERIOD	DESERVOIR	USABLE	USABLE MEASURED (First o		f Month)	
SIREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 -	
lthouse Creek pplegate River, Big pplegate River, Little shland Creek tutte Creek, Little tutte Creek, Big low Creek eer Creek li Creek migrant Creek (above Res.) vans Creek old Hill Irrigation Dist. rants Pass Irrig. Dist. rave Creek llinois River, East Fork llinois River, West Fork wmp-off-Joe Creek eel Creek ed Blanket Creek ogue River ucker Creek able Rock Irrig. Dist. hompson Creek agner Creek illiams Creek	Forecasts the Febru report wh reach you February	nich will n about	Emigrant Gap Fish Lake Fourmile Lake Howard Prairie Hyatt Prairie *Est.	39.0 7.8 16.1 60.0 16.1	20.1 4.5 5.5* 41.6 12.3	16.6 4.0 3.4 20.0 6.6	3.8 4.6 7.3 5.4	

STREAMFLOW FORECASTS a (1,000 Ac. Ft.) as of January 1, 1963

	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT,
NO.	NAME	INIS TEAR		AVERAGE	OF AVERAGE
3620	Applegate near Copper	С	April-Sept.	131	
3145	Clearwater above Trap Creek d	c	April-Sept.	73	
5045	Fourmile Lake net Inflow d	c	March-Sept.	8.0	
5140	Hyatt Reservoir net Inflow'd	c	April-Sept.	6.2	
3770	Illinois River at Kerby d	c	March-July	314	
3//0	IIIInois kiver at kerby a	c	,	196	
2405	I data - Double - N. Pla -t Edah I also - I I also Gr d	c	April-Sept.	16.9	
3425	Little Butte, N. Fk. at Fish Lake nr. Lake Cr.d	_	April-Sept.	42	
3415	Little Butte, S. Fk. near Lake Creek	С	April-July		
3280	Rogue above Prospect	С	April-Sept.	351	
	2 11 7 1 2 1 1	С	April-July	293	
3320	Rogue, South Fork near Prospect ^d	С	April-Sept.	83	
		С	April-July	71	
3350	Rogue below South Fork	С	April-Sept.	749	
		С	April-July	608	
3590	Rogue at Raygold near Central Point	С	April-Sept.	1004	
		c	April-July	842	
3615	Rogue at Grants Pass	С	April-Sept.	974	
3135	Umpqua, North below Lemolo Res. nr.				
	Toketee Falls ^d	С	April-Sept.	186	

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed. (h) Construction. (i) 7 of 18 sampling points. (j) Partly estimated. (*) 1943-57 Adjusted average.



Rogue, Umpqua Watersheds

OW		CUR	RENT INFORMA	TION	PAST	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER	WATER CON	TENT (Inches
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAG
lthouse	4530	С				Ĭ
nnie Spring	6018	12/28	21	7.1	21.7	19.7*
eaver Dam Creek	5100	g g				
ig Red Mountain	6500	c				
illie Creek Divide	5300	12/28	8	2.6	12.0	11.4*
hampion	4500	1/2	0	0.0	12.4	10.5*
old Springs Camp	6100	c			1211	1
eadwood Junction	4600	g			1	
iamond-Crater Summit	5800	12/27	20	7.3	24.2	
iamond Lake	5315	12/27	9	3.2	15.2	10.8*
den Valley Summit	2390	1/1	0	0.0	15.2	10.0
ish Lake	4865	1/3	0	0.0		
	6000		U	0.0		
ourmile Lake rayback Peak	6000	g c			1	
J						
obart Lake	5010	g 10/07		0.0	1	
oward Prairie	4500	12/31	0	0.0	4.4	7.7
yatt Prairie Reservoir	4900	12/31	0	0.0	3.5	4.2*
ittle Red Mountain	6500	С				
orth Umpqua near Lake Creek	4215	12/26	8	2.9	7.8	
age Mountain	4045	С				
ark Headquarters	6450	12/28	37	15.0	31.6	24.2*
ed Butte #1	4560	12/27	0	0.0	8.2	
ed Butte #2	4000	12/27	0	0.0	0.3	
ed Butte #3	3500	12/27	0	0.0	T	
ed Butte #4	3000	12/27	0	0.0	0.0	
ed Butte #5	2500	12/27	0	0.0	0.0	
ed Butte #6	2000	12/27	0	0.0	0.0	
ye Spring Spur	5000	g				
even Lakes #1	6800	с				
even Lakes #2	6200	С			1	-
ilver Burn	3720	12/27	Ò	0.0	5.2	5.1
iskiyou Summit	4630	12/28	0	0.0	3.2	3.4
outh Fork Canal	3500	12/27	0	0.0	0.8	1.5*
rap Creek	3800	12/26	T	Т	6.7	
agner Butte	6900	C				
haleback	5140	C				
indigo Pass	5800	C				
Indigo rass	0000	ľ				
		1				
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WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

as of JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in Klamath County is relatively good for lands served from Upper Klamath Lake and Clear Lake but only fair for acres watered from Gerber reservoir. Mountain snow pack is extremely poor for this date with no snow to be found below 5,000 feet elevation.

Moisture in the upper watershed soils is very good and will favor runoff from melting snow in the spring.

SNOW COVER

Water content of the mountain snow cover is 33 percent of the January average and is only one-fourth of that measured a year ago. Temperatures need to be more nearly normal to permit future storms to deposit snow rather than rain on the watersheds.

SOIL MOISTURE

Heavy fall rains have recharged the upper watershed soils to about 80 percent of the total capacity. A year ago these soils were extremely dry under the snow pack and soaked up much of the runoff that melting snow should have provided.

RESERVOIR STORAGE

Storage in Upper Klamath Lake is 364,500 acre feet compared with 269,700 a.f. a year ago on January 1. This is an excellent start for the 1963 season.

On the other hand, storage in Gerber and Clear Lake is 20 and 40 percent below the 15 year average (1943-57). Clear Lake holds 111,500 a.f. compared with 54,100 a.f. a year ago and Gerber holds 27,200 a.f. against only 1,600 last year. These two reservoirs are completely dependent on rain and snowfall and greatly need large amounts of runoff to provide adequate water supplies next summer.

STREAMFLOW

Inflow to Upper Klamath Lake* has averaged 131 percent of the 15 year average since October 1 and flow into Gerber and Clear Lake has also been above normal.

A normal snow pack on Klamath watersheds this year should produce excellent water supplies because the watershed soils are well recharged.

* Preliminary data from Pacific Power and Light Co., Medford, Oregon

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

STREAM or AREA	FLOW F	PERIOD	RESERVOIR	USABLE	MEASURED (First of Month)		
SIREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - 57 AVERAGE
Ft. Klamath Valley Lost River (Clear Lake) Lost River (Gerber) Lost River (Willow Res.) Sprague River Upper Klamath Lake Williamson River	Forecasts the Febru report wh reach you February	ich will about	Clear Lake Gerber Upper Klamath Lake	440.2 94.0 584.0	111.5 27.2 364.5	54.1 1.6 269.7	195.3 33.8 313.2

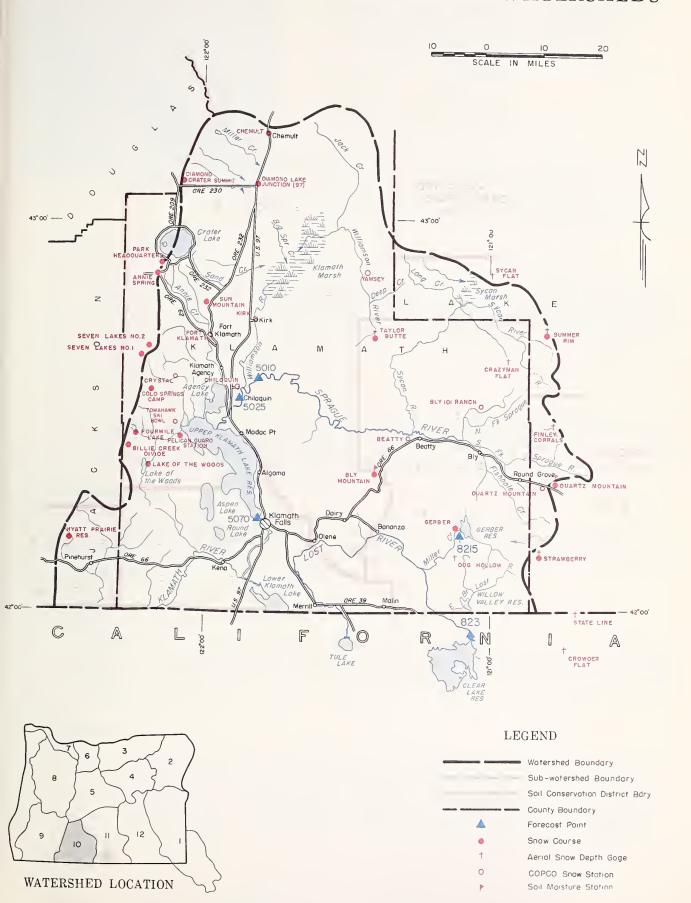
STREAMFLOW FORECASTS a (1,000 Ac. Ft.) as of January 1, 1963

NO.	FORECAST POINT NO. NAME		TUI		FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
923	Clear Lake Reservoir Inflow ^g	с	FebJune	106			
		с	April-Sept.	50			
8215	Gerber Reservoir Inflow ^g	с	FebJune	51			
		с	April_Sept.	25			
5010	Sprague near Chiloquin	с	FebSept.	390			
ŀ		с	April-Sept.	296			
5070	Upper Klamath Lake net Inflow®	С	FebSept.	960			
		С	April-Sept.	632			
5025	Williamson below Sprague River a	С	April-Sept.	486			
		С	FebSept.	657			

SNOW		CUR	RENT INFORMA	TION	PAST RECORD		
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches)	
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE	
Annie Spring	6018	12/28	21	7.1	21.7	19.7*	
Beatty (PP&L)	4300	f					
Billie Creek Divide	5300	12/28	8	2.6	12.0	11.4*	
Bly Mountain	5090	12/26	0	0.0	5.2		
Bly 101 Ranch (PP&L)	4800	f					
Chemult	4760	12/27	4	1.1	5.8	5.5*	
Chiloquin (PP&L)	4187	f					
Cold Springs Camp	6100	С					
Crazyman Flat e	6100	С					
Crowder Flat ^e	5200	С					
Crystal (PP&L)	4200	f					
Diamond-Crater Summit	5800	12/27	20	7.3	24.2		
Diamond Lake Junction (97)	4600	12/27	0	0.0	2.7		
Dog Hollow e	4900	С					
Finley Corrals ^e	6000	с					
Fort Klamath (PP&L)	4150	f					
Gerber	4850	12/31	0	0.0	2.0	5.6	
Hyatt Prairie Reservoir	4900	12/31	0	0.0	3.5	4.2*	
Kirk (PP&L)	4533	f					
Lake of the Woods	4960	f					
Park Headquarters	6450	12/28	37	15.0	31.6	24.2*	
Pelican Guard Station	4150	12/28	0	0.0	2.4		
Quartz Mountain	5320	12/26	0	0.0	4.0	3.4*	
Quartz Mountain (PP&L)	5504	12/26	T	T	4.6	3.7**	
Seven Lakes #1	6800	c					
Seven Lakes #2	6200	С					
State Line e	5750	С					
Strawberry	5600	С					
Summer Rim	7200	С					
Sun Mountain	5350	12/21	11	3.5	12.0	12.0	
Sycan Flat ^e	5500	c					
Taylor Butte	5100	12/26	0	0.0	4.1		
Tomahawk Ski Bowl (PP&L)	4200	f					
Yamsey (PP&L)	4600	f					

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From COPCO or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated. (j) Nearest current data. (°) 1943-57 Adjusted average. (°°) Average for 5 or more years in the base period.

KLAMATH WATERSHEDS



Klamath Watersheds



WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

as of JANUARY 1, 1963

U. S. D. A. SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in Lake County at this early winter date is fair although seriously dimmed by one of the poorest snow packs ever measured on January 1. Stored water supplies, although way ahead of those on hand a year ago, are still well below average, but soil moisture in the upper watersheds is well recharged from heavy fall rains.

SNOW COVER

At the beginning of the year, there is no snow at all below 5,500 feet elevation. On the higher elevations, there is widely scattered snow and very little of it. Fortunately there are two, possibly three, remaining months during which snow can accumulate.

SOIL MOISTURE

Very heavy fall rains have recharged the upper watershed soils to about 85 percent of the total capacity. This is very favorable when compared to the very dry condition a year ago.

RESERVOIR STORAGE

Drews reservoir contains 23,300 acre feet compared with only 795 a.f. just a year ago. Even so, this greatly improved storage is only 67 percent of the 15 year average (1943–57). Cottonwood has about 1,000 acre feet now which is an excellent start. Last year it had only 100 a.f.

STREAMFLOW

Lake County streams have had very high flows since October 1. Some of these flows reached stages equal to the maximum flows during snow melt runoff last spring. However all streams in this area are highly dependent upon a good snow pack for satisfactory runoff during the irrigation season. Temperatures nearer normal will be needed during the remainder of the winter to permit snow rather than rain to fall on the watersheds.

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" ar "Excellent"

RESERVOIR STORAGE (1.000 Ac. Ft.) January 1, 1963

CTDEAM ADEA	FLOW PERIOD		RESERVOIR	USABLE			
STREAM or AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943 - AVERA
Chewaucan River Crooked Creek Deep Creek Dry Creek Cast Side Goose Lake Guano Lake Honey Creek Lakeview Water Users Assn. Rock Creek (Hart Mtn.) Silver-Buck Creeks Summer Lake Thomas Creek Warner Lakes	Forecasts the Febru report wh reach you February	ich will about	Cottonwood Drew	4.1 63.0	1.0 23.3	0.1	0.34.

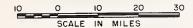
STREAMFLOW FORECASTS (1,000 Ac. Ft.) as of January 1, 1963

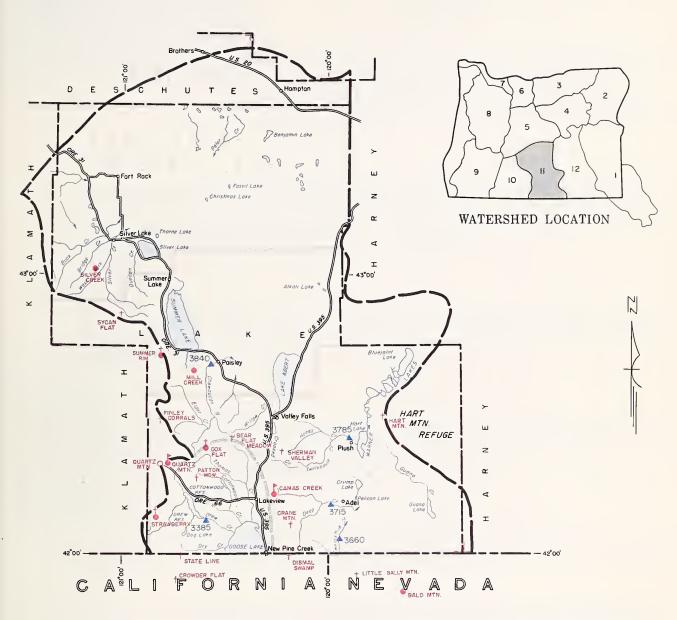
NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
3840	Chewaucan near Paisley	с	March-June	92	
	·	с	April-June	82	
3715	Deep above Adel	с	March-June	83	
		с	April-June	71	
3385	Drew Reservoir net Inflow	с	March-July	47	
		С	April-July	34	
3785	Honey near Plush	с	March-June	19.2	
		с	April-June	16.3	
3660	Twentymile near Adel	с	March-June	28	
		с	April-June	20	

SNOW		CUR	RENT INFORMA	TION	PAST RECORD	
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches)
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE
Bald Mountain (Nev.)	6720	с				
Bear Flat Meadow e	5900	С				
Camas Creek	5720	12/27	0	0.0	7.0	
Cox Flat e	5750	с				
Crane Mountain ^e	6020	с				
Crowder Flat e (Calif.)	5200	с				
Dismal Swamp e (Calif.)	7000	с				
Finley Corrals e	6000	с	1			
Hart Mountain e	6350	С				İ
Little Bally Mtn. e (Nev.)	6600	С				ì
Mill Creek	6200	С	1		1	
Patton Meadows ^e	6800	С	1			
Quartz Mountain (PP&L)	5504	12/26	T	T	4.6	3.7**
Quartz Mountain	5320	12/26	0	0.0	4.0	3.4*
Sherman Valley e	6600	с				
Silver Creek	4900	12/27	0	0.0	2.9	
State Line e (Calif.)	5750	с				
Strawberry	5600	С				1
Summer Rim	7200	с				
Sycan Flat e	5500	с				

⁽a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period. (g) Nearest current data.

LAKE COUNTY, GOOSE LAKE WATERSHEDS





LEGEND



Lake County, Goose Lake Watersheds



WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

as of JANUARY 1, 1963

U.S.D.A.SOIL CONSERVATION SERVICE OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The outlook for 1963 irrigation water supplies in Harney Basin, at this early winter date is fair, but is seriously dimmed by the shortage of snow pack in the upper watersheds. Soil moisture conditions are highly favorable and there are still two or possibly three months in which snow cover can accumulate.

SNOW COVER

There is no snow below 5,000 feet elevation at the beginning of the year. Upper elevations now have a light snow cover about 15 percent of average and only one-tenth the amount at this date last year.

SOIL MOISTURE

Above normal fall rains have satisfactorily recharged the soil profile in upper watersheds so that it is now 86 percent of total capacity. A year ago on this date, the soils were much drier and only 69 percent of total capacity.

STREAMFLOW

Streams in Harney Basin have been flowing much above average for the past two months as a result of heavy precipitation and the absence of freezing temperatures during most of the period.

Adequate spring and summer water supplies in Harney Basin are highly dependent on the accumulation of a good snow pack which in turn depends on normal temperatures during winter storms.

WATER SUPPLY OUTLOOK expressed as "Paar", "Fair" "Average" ar "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1963

STREAM or AREA	FLOW F	PERIOD	BEOEDVOID	USABLE	MEASURED (First of Mon		
STREAM OF AREA	SPRING SEASON	LATE SEASON	RESERVOIR	CAPACITY	THIS YEAR	LAST YEAR	1943
Catlow Valley Cow Creek Donner und Blitzen River Mill-Coffeepot Creeks Rattlesnake Creek Silver Creek Silvies River Soldier-Prather Creek Trout Creek Whitehorse Creek	Forecasts the Febru report wh reach you February	ich will about					

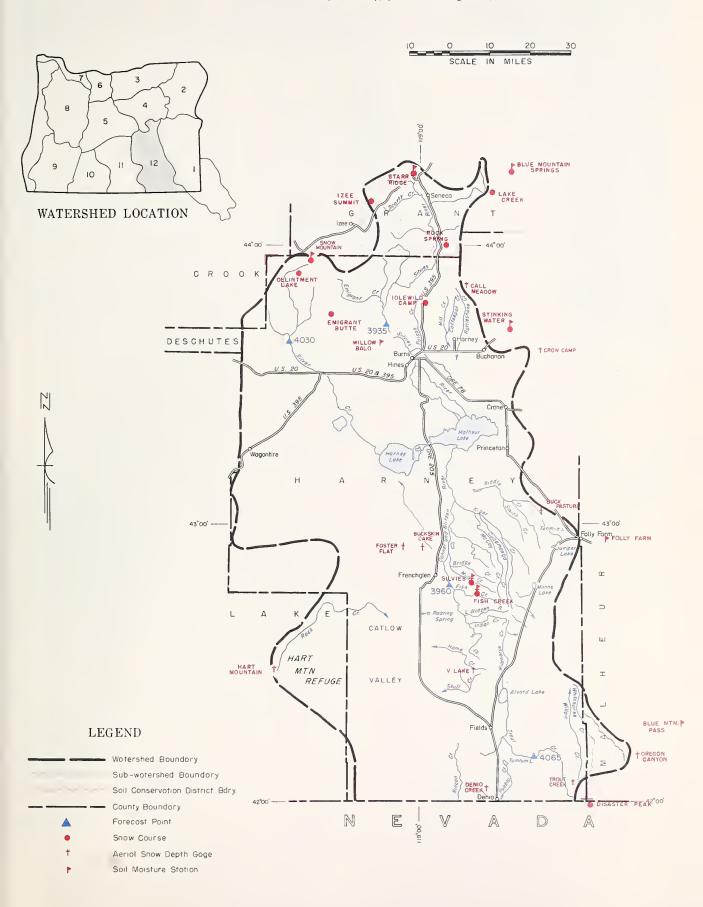
STREAMFLOW FORECASTS a (1.000 Ac. Ft.) as of January 1, 1963

	FORECAST POINT	FORECAST	FORECAST PERIOD	1943-57	THIS YEAR	
NO.	NAME	THIS YEAR	TONEGRATIVENION	AVERAGE	OF AVERAGE	
3960	Donner und Blitzen near Frenchglen	с	March-June	63		
		с	April-Sept.	67		
4030	Silver near Riley	с	April-July	26	1	
3935	Silvies near Burns	с	March-June	124		
		с	April-Sept.	107	1	
4065	Trout near Denio	с	March-July	9.5		
		С	April-Sept.	9.2	1	
					1	
					1	
					}	
					i	

SOIL MOISTURE		PROFILE	(Inches)		SOIL MOISTU	RE (Inches)	
STATION		DEPTH	CAPACITY	DATE	THIS	LAST	2 YEARS
NAME	ELEVATION	J	OAT ACTIT	54.12	YEAR	YEAR	AGO
Blue Mountain Springs Fish Creek Folly Farm Silvies Snow Mountain Starr Ridge Stinking Water Willow-Bald	5900 7600 4450 6900 6300 5150 4800 5000	42 48 36 48 48 36 48 24	16.9 15.0 12.5 16.4 16.7 10.6 21.9 6.6	12-27-62 10-22-62 12-19-62 10-22-62 c 12-27-62 12-19-62 12-19-62	12.3 9.2 9.0 11.7 10.3 20.9 6.5	7.6 6.8 20.7 3.4	7.9 21.2 3.8

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Partly estimated. (i) No Fall measurement. (j) Nearest current data. (k) 2 miles south of regular course. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

HARNEY BASIN WATERSHEDS



Harney Basin Watersheds

SNOW		CUR	RENT INFORMA	TION	PAST F	RECORD
SNOW COURSE		DATE OF	SNOW DEPTH	WATER CONTENT	WATER CON	TENT (Inches)
NAME	ELEVATION	SURVEY	(Inches)	(Inches)	LAST YEAR	1943-57 AVERAGE
Blue Mountain Spring	5900	12/27	8	3.1	10.5	6.9*
Buck Pasture e	5700	С	1			
Buckskin Lake ^e	5200	c				
Call Meadows ^e	5340	С				
Crow Camp ^e	5500	С				
Delintment Lake	5600	С				
Denio Creek ^e	6000	с				
Disaster Peak (Nev.)	6500	с				
Emigrant Butte	5000	С	1			
Fish Creek ^e	7900	С				
Foster Flat ^e	5020	с				
Hart Mountain e	6350	С				
Idlewild Camp	5200	12/28	0	0.0	3.5	2.6*
Izee Swmmit	5293	12/27	0	0.0	5.5	4.6*
Lake Creek	5120	12/27	1	0.1	6.0k	
Oregon Canyon ^e	6950	с				
Rock Spring	5100	12/28	1	0.2	2.3	2.7*
Silvies ^e	6900	с	1			
Snow Mountain	6300	c				
Starr Ridge	5150	12/27	0	0.0	4.5	2.8*
Stinking Water	4800	12/27	T	T		2.1*
Trout Creek ^e	7800	c				
"V" Lake ^e	6600	с				

LOCATION ELEV. SEC. TOP. FSE.	NUMBER NAME	LOCATION ELEV. NUMB	ER NAME LOCATION SEC. THE.	ELEV. NUMBER NAME	LOCATION FLEV.		1			
OWYHEE, MALHEUR WATERSHEDS (1) Owyhee River	16G11a Red Canyon (Ida		, POWDER, PINE, GRANDE RONDE, IMNAHA W	ATERSHEDS 17D10e 8ald Moun	SEC. TWP. RGE.	NUMBER NAME	LOCATION BLE ELEV.	NUMBER NAME	LOCATION ELEV.	NUMBER NAME LOCATION ELEV.
Antelope Ridge (Ida) 32 88 1W 5900	15H6M Rodeo Flat (Nev 15H3A 76 Creek (Nev 16F3 Silver City (Ida) 6 44N 58E 7100 18E1	10 145 j	18D9 Seaver Re 1808 County Li 08 5950	servoir 8 5S 37E 5340 ne 28 4S 34E 4800		DAY WATERSHEDS (4) hn Day River	Middle Fark	Willamette River	Pacific Power and Light Company's
15EM Rear Creek (Nev) 31 46N 5SE 7500 (Nev) 30 45N 56E 6700	18GlMA Silvies 16Gl South Mountein No.2(Ida	35 328 32	M Ocoley Mountain 32 11S 4	6E 5098 18D5 Meecham DE 5430 17013a Mirror La	24 & 25 1S 35E 4300	18El Anthony Lake 1902 Arbuckle Mount	18 7S 37E 7125	22F3 Gascade Summit 22F6 McCredie Springs 22F8 Meridian Oam	7 23S 6E 4880 26 21S 4E 2120 13 19S 1W 750	Snaw Stations 1 Beatty (PP&L) 22 36S 12E 4300
Plue Nth Fass Rickskin, Lover (Nev) 25 45N 39E 6700	16F6a Succor Creek (Ida 15H9M Taylor Canyon (Nev 15H8 Tremewan Ranch (Nev) 25 3S 5W 6100 18E8) 35 39N 53E 6200 18E9	Gold Center 21 QS 3	SE 5340 18D7 Schoolmar	15 28 3S 41E 5850 10 28 4S 34E 4775	18D12M Sattle Mountai 19E2M Seech Greek Su	1 Summit 29 3S 31E 4340 mmit 4 12S 30E 4800	22F7 Oakridge 22F5 Railroad Overpas	16 21S 3E 1310 27 22S 5E 2750	10 81y 101 Ranch (PP&L) 22 35S 14E 4800 Chiloquin (PP&L) 34 34S 7E 4187
11F2 Resin (1da) 29 128 5W 5600 Rull Basin (Nev) 8 47N 34E 6500	16G4MA Triangle (1de 18G5a Trout Creek	9 39N 55E 5700 25 7S 3W 5150 10 41S 38E 7800 18E1	Powder River	17D7 Taylor Gr 18D3M Tollgate	28 2S 42E 7400 3 6S 42E 5740 32 4N 38E 5070	18E16M Blue Mountain 18E13M Slue Mountain 19E3M Oerr	Summit 6 12S 35E 5900	22F4 Salt Creek Falls 22F2 Waldo Lake 22F14 Willametta Pess	33 22S 6E 4000 15 21S 6E 5500	5 Fort Klamath (PP&L) 26 345 6E 4200 22 33S 7½E 4150
1832M Fish Greek 4 355 35E 7900	18G7a "V" Lake Malheur Riv	31 35½S 32¾E 6600 18E5 17E1N	8ourne 33 85 3 4 Ocoley Mountain 32 118 4	7E 5800	11 2S 43E 5670 Imnaha River	18E27a East Fork Gany 18E8 Cold Genter 18E24a Indian Cr. Sut	21 95 367 5240	Coast Fork	Willamette River	9 Quartz Mountain (PP&L) 33 37S 16E 5504 8 Tomahawk Ski Bowl (PP&L) 3 36S 6E 4200
Fox Creek (Nev) 31 43N 54E 6700 1557 Fry Canyon (Nev) 31 45N 56E 6600 1557 Gold Creek (Nev) 31 45N 56E 6600	18E14 Barney Creek 18E16M Blue Mountain Spring	16 14S 36E 5950 18E8 21 15S 35E 5900 18E6	Eilertson Meadows 18 8S 3 Gold Center 21 9S 3	BE 5400 17D1 Ameroid Le SE 5340 1702 Ameroid Le	ke No. 1 16 /S /5F 2/80	19E9 Izee Summit 18D6 Lucky Strike	5 15S 33E 6550 28 16S 29E 5293	22F10 Golden Curry Cre 22F13 Layng Greek R. S	12 23S 1E 4500 ek 1 23S 1E 3136 3. 31 21S 1E 1200	12 Yamsey (PP&L) 20 31S 11E 4600 LAKE COUNTY, GOOSE LAKE WATERSHEDS (11)
1784 Granite Peak (Nev) 22 244 394 7800	18F6a Buck Pasture 18E2la Bully Creek	21 29S 35E 5700 17D12 10 17S 37E 5300 18E23	In Ladd Summit 5 58 36 Little Alps 10 78 37	DE 3730 17014 8ig Sheep	33 45 46E 6200 ALLA WALLA, WILLOW, ROCK,	20E1M Merks Creek 20E2 Ochoco Meadows	28 3S 32E 5050 25 12S 19E 4540 21 13S 20E 5200	22F12 Lund Park. 22F11 Weaver Greek	22 22S 1E 1740 35 22S 1E 2440	Goase Lake
165IM Jack Creek, Upper (Nev) 9 42N 53E 7250 165I Jack Creek, Upper (Nev) 28 42N 53E 8420	18F7a Call Meadows 17F2a Cottonwood-Indian 18E19M Crane Prairie	29 20\$ 33E 5340 18010 10 19\$ 39E 4320 17D7 24 16\$ 34E 5375	Summit Springs 9 6S 3'	E 6000 LOWER J	OHN DAY WATERSHEDS (3)	1807 Schoolmarm 19FlM Snow Mountain	14 9S 33½E 6000 28 4S 34E 4775 1 19S 26E 6300	Mary 23El Mary's Peak	's River 21 12S 7W 3620	20315a Bear Flet Meadow 27 368 19E 5900 2036M Gamas Creek 5 398 21E 5720 20316a Cox Flat 16 378 18E 5750
1743m Jordan Valley 9 308 468 4390 1743m Lookout Butte 2 408 47E 5650	18F8a Crow Gamp 18E20 Eldorado Pass	Unsurveyed 20 14S 38E 4600 17D8	Pine Creek Schneider Meadows 35 68 49	19D2 Arbuckle!		19E7M Starr Ridge 18E9 Tipton 18E25M Williams Ranch	20 15S 31 5150 34 10S 35 E 5100	ROGUE, UMP	QUA WATERSHEDS (9)	20H2a Crowder Flat (Cal) 30 47N 11E 5200
1764 Louse Canyon (Nev) 18 44N 40E 6700 (Nev) 18 39N 46E 7200	18E26a Flag Prairie 18E18 Lake Creek 18E22a Logan Valley	32 16S 36E 4750 10 16S 33½E 5120 13 16S 33½E 5100 17D1	Grande Ronde River	18D12M Sattle Mou	ston Summit 21 4N 35E 1700 untain Summit 29 3S 31E 4340 Springs 29 1N 35E 3925	Tempol	20 15S 32E 4500 CROOKED WATERSHEDS (s)	23G4 Althouse	ue River 17 41S 7W 4530	20G17a Patton Meadow 28 38S 18E 6800 20G6M Quartz Mountain 2 38S 18E 6820
1637 Mulf Flat (1da) 34 98 2W 5500 1657M Mulf Flat (1da) 34 98 2W 5500 1755a Oregon Canyon 8 40S 40E 6950	18F1 Rock Spring 18F4M Stinking Water	23 18S 32E 5100 17D2 33 21S 34E 4800 18E1	Aneroid Lake No. 1 16 4S 45 Aneroid Lake No. 2 16 4S 45 Anthony Lake 18 7S 37	E 7000 18D5 Meacham	ke 28 3S 32E 5050 24 & 25 1S 35E 4300	Upper D	eschutes River	22C6 Annie Spring 22G28 Beaver Oam Cree 22G21 Big Red Mountain	19 31S 6E 6018 1 38S 4E 5100	20Hla State Line (Cal) 21 48N 11E 5750 2009A Strawberry 4 40S 16E 5600
				18D13 Walle Wall	32 4N 38E 5070 a Diversion 22 6N 38E 2400	21F8 Celdwell Ranch 22F3 Cescede Summit	ing 14 16S 9E 4600 30 21S 8E 4400 7 23S 6E 4880	22G13 Billie Creek Di 22G27 Deadwood Juncti	vide 30 36S 5E 5300 on 8 38S 4E 4600	Abert Lake 20015a Bear Flat Meadow 27 36S 19E 5900
[23°	122* 191*			18D3M Tollgate	ılla Walla River 32 4N 38E 5070	21F7 Charlton Lake 21F11 Chemult 21F14 Fire Roed	23 21S 6N 5750 21 27S 8E 4760	22F19 Diamond-Cratar 22G14 Fish Lake 22G12 Fourmile Lake	Summit 34 28S 6E 5800 3 37S 4E 4865 9 36S 5E 6000	20014a Finley Gorrale 16 37S 18E 5750 20014a Finley Gorrale 11 36S 16E 6000
C W W	A SH I	NGT	O N 118*	19D2 Arbuckle N	Willow Creek ountain 33 48 29E 5400	21E6 Hogg Pass 21F4 Hungry Flet	36 21S 11E 5050 24 13S 74E 4755 30 18S 11E 4400	23G3 Grayback Peak 22G17 Hobart Lake	9 40S 5W 6000 17 40S 3E 5010	2006M Quartz Mountain 2 385 16E 5320 20010a Sherman Valley 15 37S 21E 6600
45 CLATSOP		,			95 46°	21F6 Irish-Taylor 21F17 Mowich 21F10 New Crescent I	25 20S 6F 5500 29 25S 25H 4700	22G16 Hyett Preirie F 22G22 Little Red Moun	eservoir 15 39S 3E /000	Summer Lake 20G2A Summer Rim 15 33S 16E 7200
S COLUMBIA)			River	ma l		21F19 New Dutchman F 21F13 Paulina Lake	lat #2 21 18S 9B 6400 34 21S 12E 6330	23G5 Page Mountain 22G5 Park Headquarte 22G29 Rye Spring Spur	8 41S 7W 4045 rs 8 31S 6E 6450	Silver Lake
PORTLA	COLUMBIA COLUMBIA	RIVER	O RIVET IBD3			21F15 Pauline Prairi 21F3 Tangent 21E15 Three Creeks 8	28 18S 10E 5400	22G10 Seven Lakes No. 22G11 Seven Lakes No.	1 3 34S 5E 6800 2 26 33S 5E 6200	20013a Sycan Flat 25 31S 14E 5500
D WASHINGTON MULT	HOMAH RIVE R PIDZI CO	Pact -	1804	Ma 1		21E13 Three Creek Me 22F2 Waldo Lake	dows 3 17S 9E 5600 15 21S 6E 5500	22G2 Silver Burn 22G20 Siskiyou Summit 22G9 South Fork Cans		Worner Lake 20G8M Camas Creek 5 39S 21E 5720 20G16a Grane Mountain 13 40S 21E 6720
TILLAWOOK -	2 Sanor R 21024 Five name		OIS Grange	25		22F14 Willamette Pas 22F15 Windigo Pess	33 24S 54E 5600 20 25S 6E 5800	22C18 Wagner Butte 22C1 Whaleback	1 40S 1W 6900 3 31S 2E 5140	20H3a Dismal Swamp (Gel) 31 48N 22E 7000 19Gla Hart Mountain 1 36S 25E 6350
Y A WHILL CLL	SHE RMA	GILLIAM MORROW	1702 17013 1			19E3M Derr	ed River 14 13S 23F 5670	Ump 22F9 Champion	qua River 12 23S 1E 4500	20Gl0a Sherman Valley 15 37S 21E 6600 Guano Loke
	21D(6 21D17 21D13 W A S C 0)	1902	1807 1708	7	0 40 60 45°	20ElM Marks Creek 20E2 Ochoco Meadows 19F1M Snow Mountein	25 12S 19F 4540 21 13S 20E 5200	22F18 Oiamond Lake 23G7 Eden Valley Sum	29 27S 6E 5315 mit 10 32S 10W 2390	19Hl 8ald Mountain (Nev) 17 45N 21E 6720 19Gla Hart Mountain 1 36S 25E 6350
O R TOUR SAND	21016		(862) (862) (863) (863) (863) (863)	7		19E4 Tamarack	1 19S 26E 6300 8 15S 25F 4800	22F16 North Umpqua 22F23 Red Sutte No. 1 22F24 Red Butte No. 2	19 26S 6E 4215 36 27S 2W 4560 30 27S 1W 4000	19H4a Little Sally Mt. (Nev) 8 45N 19E 6600
N Santrag	22E	The last	18E7 18E8 8E5 10E0		NII		MILE CREEKS UTES WATERSHEDS (6)	22F25 Red Butte No. 3 22F26 Red Butte No. 4	30 278 1W 3500 36 278 1W 3000	HARNEY BASIN WATERSHED (12) Silvies River - Silver Creek
E SENTON	21E4 JEFFERSOH	WHEELER ISEZO	IBEIS BUTTE! RIVER		17	Hoc 2105 Srooks Meadows	d River 2 2S 10B 4300	22F27 Red Butte No. 5 22F28 Red Butte No. 6 22F17 Trep Creek	20 27S 1W 2500 17 27S 1W 2000 1 27S 4E 3800	18F7a
Same and the same	2/25	19E3 20Y	Piver IBERO	D LEGEND		21D25M Cooper Spur 21D1 Greenpoint Rese	6 2S 10B 3490	22Gl Whaleback 22F15 Windigo Pass	3 31S 2E 5140 20 25S 6E 5800	18F3 Idlewild Camp 27 20S 31E 5200 19E9 Izee Summit 28 16S 29E 5293
	ROWERS 21E7	1964	18E24 BE27/BE 22 18E16	5		21D20 Knebal Springs 21D23 Parkdale 21D8 Phlox Point	31 1S 11B 3850 6 1S 10B 1770 6 3S 9B 5600	KLAMATH V	WATERSHEDS (10)	18F1 Rock Spring 23 18S 32E 5100 19F1M Snow Mountain 1 19S 26E 6300 19E7M Starr Ridge 20 1SS 31E 5150
Mc 122E6	2285 226 21E9 21E13	ROOK 19E9	BEZI BEZI		ned Boundary 44°	21D4 Red Hill 21D9 Still Creek	21 1S 9E 4400 25 3S 8½E 3700	22G6 Annie Spring	th Rivar 19 31S 6E 6018	18F4M Stinking Water 33 21S 34E 4800 19F4m Willow-Bald 19 22S 29E 5000
L AND E	DESTAUTES		●17F2	• Snow C		21D7 Tilly Jame 21D21 Ulrich Rench Ju 21D24 Upper Valley		22G13 Sillie Greek Oiv 21G5 Sly Mountein 21F11 Ghemult	15 & 22 37S 11E 5090	Donnar Und Blitzen River 18F6a Buck Pasture 21 29S 35E 5700
22513	7 22F2 1 21F8 E1F15	19F2 19F3	Malheut aver	o PP&L	Snow Station	Mile Creak	20 1S 10E 2530 s - Mosier Creek	22G24 Cold Springs Cam 20G12a Crazyman Flat	21 27S 8E 4760 p 12 35S 5E 6100 9 34S 15E 6100	18G2MA Fish Creek 4 33S 33E 7900 19Gla Hart Mountain 1 36S 25E 6350
8 22Fiz 22Fid 22Fi	22F4 2IF13	19F4	INFR INFR		24	21D6 Brooks Meadows 21D20 Knebal Springs 21D21 Ulrich Ranch Ju	2 2S 10E 4300 31 1S 11E 3850 ection 28 1S 11E 3350	20H2e Crowder Flat 22F19		18G7a "V" Lake 31 35åS 32‡E 6600
hank The	2F9 2F9	C. Mali				Lawar De	schutes River	21G6a Dog Hollow 20G14a Finley Corrals	1 40S 14E 4900 11 36S 16E 6000	Trout and Whiteharse Creeks 1866a Denio Creek 14 418 34E 6000 18HI Oisester Feak (Nev) 8 47N 34E 6500
North Company River	ROPIG ZIFIT		NALHE OR			21D12 Clear Lake 21E6 Hogg Pass	29 4S 9E 3500 24 13S 7½S 4755	22G12 Fourmile Lake 21G4 Gerber 22G16 Hyatt Prairie Res	9 36S 5E 6000 12 39S 13E 4850 ervoir 15 39S 3E 4900	18HI
22F27 22F25 22F25	22F18 21F18 21F18 0 Silver	Horney Lake	1856	16F3	43*		MBIA WATERSHEDS (7)	22G26 Howard Prairie 22G15 Lake of the Woods	32 38S 4E 4500 11 37S 5E 4960	Harney Lake 1808 8uçkskin Lake 2 30S 30E 5200
2261 - 122	Crater L	A K E 1964 H A R N	1853 VG3	Val		21D8 Phlox Point 21D9 Still Creek	y River 6 3S 9E 5600 25 3S 8½E 3700	22G5 Park Headquarters 22G25 Pelican Guard Sta 20G6M Quartz Mountain		1964 Footer Flat 15 305 29E 5020
22	2162	immer Lake	Blitzen	6GI 16G5 6G6			E WATERSHEDS (e)	22G10 Seven Lakes No. 1 22G11 Seven Lakes No. 2	3 34S 5E 6800 26 33S 5E 6200	LEGEND
CUP RY 2269	22GI) 21G3 TH 20G12	OG4 (Loke)	7,1862	16G7		Clacko 21015 8ig Bottom	mas Rivar 25 6S 7E 2118	20Hla State Line 20G9A Strawberry 20G2A Summer Rim	(Gal) 21 48N 11E 5750 4 40S 16E 5600 15 33S 16E 7200	1902M SHOW COURSE AND SOIL MOISTURE 1902MA SHOW COURSE, SOIL MOISTURE AND AERIAL MARKER
JACKS ON REGIONS	80 PD 3	20GIS Worner Lakes	18G7 • Alvord	669 16610		21013 Cleckamas Lake 21D12 Clear Lake	35 5S 8½E 3400 29 4S 9E 3500	21G2 Sun Mountain 20G13a Sycan Flat	22 32S 7½E 5350 25 31S 14E 5500	1902A SNOW COURSE AND AERIAL WARKER 19020 SOIL WOISTURE ONLY
22626	22G2 122G15 122 G28 122 G28	POGI 2ÓGIO	17G2 7G6	Ownee 1		21016 Lake Harriet 21D14 Peevine Ridge 2108 Phlox Point	4 6S 7F 2045 14 & 15 6S 7E 3500 6 3S 9E 5600	21G3 Taylor Butte	16 33S 11E 5100	1902. AERIAL MARKER OMLY
2365 2362 22618 22618 22618	COST PINE STORY	ew 2068 Guana	Cree4 50 1765 1764	River	42	2109 Still Creek 21D17 Timothy Lake	25 3S 8½E 3700 26 5S 8E 3295			
0 E L 2564 22521	Lower Kinnah L 20H2 20	Goos 20G16	18G5 8HI H U N O D L O T	Saulin 15H4 15H	1●●15H2	Santic 22El Detroit (town)	m River . 1 10S 5E 1610			
GAL SISKI	Riomath L N 1 20M2 20 CO	19H4 S H O E	N E V 17H1-A	A PELK 0 15H5	●I5H3	22E2 Detroit Dam 21E6 Hogg Pass	7 10S 5E 1580 24 13S 7½E 4755			
17H4 • 17H3						21E4 Marion Forks 28 118 7E 2730 22E3 Mill City 29 98 3E 826 21E5 Santiam Junction 14 138 7E 3990 21E3 Whitewater Bridge 28 108 7E 2175 Map and Index				
						21E3 Whitewater Sridge				
124" (23"				●15H8 15H9		21E8 Dead Horse Grede 22E4 Lost Greek Ranch	13 16S 7E 3800 24 16S 6E 1956			to

OREGON SNOW COURSES

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

Idaho Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon State University
Oregon State Engineer and Corps of State Watermasters
Oregon State Highway Engineers
Soil Conservation Districts of Oregon

COUNTY

Douglas County Water Resources Survey

FEDERAL

Department of Agriculture
Cooperative Extension Service
Forest Service
Soil Conservation Service
Department of Commerce

Weather Bureau
Department of the Interior
Bonneville Power Administration
Bureau of Land Management
Bureau of Reclamation
Fish and Wildlife Service
Geological Survey
National Park Service

Department of National Defense
Corps of Army Engineers

PUBLIC UTILITIES

Pacific Power and Light Company Portland General Electric Company California-Pacific Utilities Company

MUNICIPALITIES

City of Baker
City of La Grande
City of The Dalles
City of Walla Walla
IRRIGATION DISTRICTS

Arnold Irrigation District Associated Ditch Companies Burnt River Irrigation District Central Oregon Irrigation District East Fork Irrigation District Grants Pass Irrigation District Jordan Valley Irrigation District Lakeview Water Users, Incorporated Medford Irrigation District North Board of Control - Owyhee Project North Unit Irrigation District Ochoco Irrigation District Rogue River Valley Irrigation District South Board of Control - Owyhee Project Sauaw Creek Irrigation District Talent Irrigation District Tumalo Project Vale-Oregon Irrigation District

PRIVATE ORGANIZATIONS

Amalgamated Sugar Company
The Crag Rats, Hood River, Oregon

Warmsprings Irrigation District

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ROSS BLDG., 209 S.W. 5TH AVE.
PORTLAND 4, OREGON
OFFICIAL BUSINESS

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U. S. DEPARTMENT OF AGRICULTURE

COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"